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REPORT

ON THE

UNITED STATES AND MEXICAN BOUNDARY SURVEY,

MADE UNDER

THE DIRECTION OF THE SECRETARY OF THE INTERIOR,

BY

WILLIAM H. EMORY.

MAJOR FIRST CAVALRY AND UNITED STATES COMMISSIONER.

VOLUME II.

MISSOURI BOTANICAL GARDEN LIBRARY

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IN THE SENATE OF THE UNITED STATES.—June 4, 1858.

Resolved, That the resolution of the Senate of the 15th of August, 1856, which directs the printing of two thousand extra copies of the Appendix to the Report of Major Emory on the Mexican Boundary Survey, be so far modified as to authorize the printing of only one thousand extra copies of said Report.

Attest: ASBURY DICKINS, *Secretary*.

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PART I.

BOTANY OF THE BOUNDARY.

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INTRODUCTION.

INTRODUCTION.

BY C. C. PARRY, M. D.

GEOGRAPHICAL DISTRIBUTION.

Every observing traveller must have noticed how closely the peculiarities of the scenery of a country depend upon its vegetable productions. Not only is this true of trees and the larger forms of plants, but even the humbler, though apparently insignificant in themselves, have their share in producing the general effect. Hence the subject of the geographical distribution of plants is one which may command the attention of every intelligent mind, and this department of botany has for many an interest which the higher details of the science do not possess.

Perhaps no region of equal extent presents more marked illustrations of the relation of the vegetation of a country to its topography and geology than those afforded by that lying along the Mexican boundary line.

The usually difficult task of constructing a phytological map might here be performed with comparative ease, as the observer, little perplexed by a great variety or gradual blending of forms, involuntarily associates particular localities with the predominating and characteristic vegetable productions. Thus one who has ever traversed the desert table lands of the Upper Rio Grande will not fail to unite in his recollection of these tracts the dull foliage of the Creosote bush, the long thorny wands of the *Fouquieria*, the palm-like *Yucca*, and the crimson-flowered and spine-armed *Cereus*. Still less can any one, who has seen the giant cactus of the Gila in its perfection, ever forget the wild and singular features of the country in which it grows. The distinctness with which the botanical districts are defined gives an unpleasant sameness to the scenery of this country. The extensive plains exhibit a monotonous succession of the same forms, and each mountain slope and ravine presents us a collection of plants quite like those we have so often seen in other and similar localities. Indeed, the botanist in these regions, knowing what to expect in each different situation, soon loses his zeal, and becomes intent upon little else than overcoming space.

We propose to give a rapid sketch of the features presented by the vegetation of the country, especially noticing those plants which predominate in, and give character to, the several districts into which we have divided it.

THE LOWER MARITIME BELT.

The flora of this strip of country is too well known to require an account here, had we the necessary data for describing its characteristic botanical productions. Its position being intermediate between the "tierra caliente" of Mexico and the gulf coast of Louisiana, gives to its vegetation a mixed character, partaking of that of the two extremes. Thus, while upon the

lower portion of the Rio Grande, we have the sub-tropical character of its vegetation indicated by the presence of the arborescent palms of the "tierra caliente," we have at the same time the Texas live-oak, the type of a more northern flora. This region has been more thoroughly explored by A. F. Schott, esq., whose observations upon its botany and other natural features will be found in a separate memoir.

UPPER MARITIME BELT.

To the lower belt, which has an uniform alluvial soil, and is more or less influenced by its vicinity to salt water, succeeds rolling prairies, underlaid by cretaceous rocks, which now for the first time appear, though more or less hidden from view by a thick layer of erratic and alluvial deposits. This division includes, as we have already noticed, the most habitable parts of Texas, through which run the numerous rivers which empty into the Gulf of Mexico. Here we find rich cotton lands, and an abundance of trees, including species of oak, hickory, ash, elm, walnut, cypress, &c., with an exceedingly rich undergrowth of vines and shrubbery. The open prairies are densely covered with luxuriant grasses, and have a rich and varied flora, which has been well explored by the early labors of Drummond, and later by those of Linctheimer and Wright. Upon the southern portion of the Rio Grande, where there is a higher temperature, united with greater aridity of the soil, a vegetation of quite a different character appears; we have here the dense growth of "chapparral," which is so peculiar to this region. The plants which make up the thick mass of shrubbery known by this name are different species of *mimosa* and *acacia*, with the well known mezquit and other forms, most of which are armed with hooked thorns, and make up a jungle which is almost impenetrable.

The botany of this region is too well known, from various published accounts, to require further details in this place.

VEGETATION OF THE CRETACEOUS FORMATION.

As the geological formation becomes more exclusively cretaceous the vegetation assumes a peculiar character, and is made up of species which are rarely found elsewhere. The shrubbery of this region presents a continuous succession of the same forms, among which are *Berberis trifoliolata*, *Rhus microphylla*, *Porliera angustifolia*, *Diospyros Texana*, *Roeberlinia spinosa*, *Adolphia infesta*, *Microrhamnus ericoides*, and *Acanthoceltis*, a new genus of Engelmann, allied to *Celtis*. Along the margins of the usually dry water courses the dwarf walnut (*Juglans rupestris*) and *Fallugia paradoxa* are constantly found.

The perennial herbaceous plants of this district are numerous. The rocky ledges produce in their crevices various species of *Laphamia* and the scarlet flowered *Pentstemon Grahamii*. Several examples of the large tropical family of *Malpighiaceæ* are found here, among them *Galphimia linifolia*, *Aspicarpa hyssopifolia*, and *Janusia gracilis*. Cacti are numerous, and include among the forms here presented opuntias, mammillarias, and numerous species of cereus. The curious *Lycopodium dendrolobium* grows upon the perpendicular faces of the limestone rocks. This plant commonly called "rock rose," is remarkable for the hygrometric qualities of its fronds, which are usually rolled up so that the plant forms a dry ball, which expands under the influence of moisture, and then appears fresh and vigorous. Several new species of *Cheilanthes*, *Pteris*, *Notoclœna*, and other genera of ferns are found here.

Upon the rocky ledges a small species of agave grows in abundance. The low leaves, which are pointed with sharp spines, are very troublesome to the foot traveller; they are, however, of some use to the Mexicans, who employ the strong fibres they contain in making coarse ropes. The plant is known to the people of the country as "Lechaguia." The table lands and valleys are usually covered with an abundant growth of "grama grass," and among it are frequent clumps of *Dasylirium*, or "bear's grass."

We have here also several interesting species of *Nyctaginaceae*, belonging to the new genera, *Acleisanthes*, *Pentacrophis*, and *Selenocarpus*, lately proposed by Dr. Gray.

Among the annual plants of this district are several species of *Mentzelia*, *Perezia*, *Pectis*, *Hymenatherum*, &c., also the pretty *Eucnide lobata*, which usually grows in almost inaccessible situations upon the perpendicular faces of the limestone ledges.

There are so many species that seem to be equally abundant that it is difficult to designate any as being characteristic of the cretaceous district.

VEGETATION OF THE HIGHER BASIN PLAINS AND THE ADJOINING MOUNTAIN RIDGES.

The higher alluvial tracts, forming the basin plains before described, produce a number of northern forms of plants, such as species of *Œnothera*, *Gaura*, *Riddellia*, *Zinnia*, and *Polygala*. We also find here the curious *Peganum Mexicanum* and *Peteria scoparia*, the latter a pretty plant of the family *Leguminosæ*. The depressions in this alluvial region are covered with a coarse grass, which presents an uniform dead brown color throughout the greater part of the year. In the deep recesses and shaded valleys, the vegetation has a freshness unknown to that of the plains. In these localities we encounter the upland live oak (*Quercus Emoryi*, and the nut pine, (*Pinus edulis*,) and growing beneath these, *Vitis incisa*, *Clematis Pitcheri*, *Ungnadia speciosa*, &c. The constant presence of water in the larger valleys is marked by the growth of cotton wood and willows.

VEGETATION OF THE EL PASO BASIN AND THE UPPER RIO GRANDE VALLEY.

The vegetation of the immediate valley of the Rio Grande, and that of the country immediately adjoining it upon either side, are strikingly different, and whoever passes from the valley, and crosses the line of mountains which bounds it to the regions beyond, cannot but remark the difference in the landscape, due to the presence of new plants. Upon the table lands which spread out beyond the mountain barrier, the eye falls upon a great variety of plants, none of which are seen in the more fertile valley. Among these are *Fouquieria splendens*, *Larrea mexicana*, *Flourensia cernua*, *Rhus microphylla*, *Condalia obovata*, *Koeberlinia spinosa*, and species of *Krameria*, *Ephedra*, and *Yucca*. There the *Cacti* flourish in a congenial soil, and we find representatives of the genera *Opuntia*, *Echinocactus*, *Mammillaria* and *Cereus*.

Among the numerous herbaceous and suffruticose plants of these localities we may mention *Cevallia sinuata*, *Greggia camporum*, *Eriogonum Abertii*, and several species of *Dalea*; plants of the family *Compositae*, are especially abundant, and include among others *Baileya multiradiata*, *Bahia absinthifolia*, *Porophyllum scoparium*, *Psathyrotes scaposa*, *Hymenatherum acerosum*, *Townsendia strigosa*, *Calycoseris Wrightii*, *Stephanomeria minor* and *Rafinesquia Neo-mexicana*.

The natural order of *Nyctaginaceæ* is represented by *Selenocarpus chenopodioides*, *Boerhaavia Wrightii*, and others.

The principal grasses of this region consist of the kinds known as "bunch grass," and belong to the genera *Chondrosium* and *Bouteloua*. The margin of the table land, where it

borders upon the valley is broken by deep ravines, and we find here upon the sandy bluffs a growth of chaparral, made up principally of mezquit and the equally thorny acacias. In the dry pebbly water courses, the willow-leaved *Chilopsis linearis* frequently occurs. Many of the already mentioned plants of the table land are found here, besides others, which are peculiar to these localities, such as *Dithyræ wislizenii*, *Abronia mellifera*, *Gilia longiflora*, *Lepidium alyssoides*, *Gaillardia pinnatifida*, *Palafoxia Hookeriana* and *Tetraclea Wrightii*, a singular genus of *Verbenaceae*, recently described by Dr. Gray. In the valley of the Rio Grande we frequently find a heavy growth of cotton wood and willows. The "screw bean," *Strombocarpa pubescens*, often occupies large tracts, accompanied by a dense undergrowth of *Baccharis salicina*. The low saline places produce an abundance of *Obione canescens*, while on the higher ground, *Tessaria borealis* is a common plant.

A number of coarse composite plants are found in the valley, such as *Texmenia encelioides*, *Coreopsis cardaminefolia* and *Aster spinosus*, the latter often forming dense matted masses of considerable extent.

The rocky crevices of the adjoining mountains furnish some of the most interesting plants of this region. We here find *Fendleria rupicola*, *Mortonia crassifolia*, *Glossopetalon spinescens*, *Agenia parvifolia*, *Bouvardia hirtella*, *Tecoma stans*, *Texmenia brevifolia*, &c.

The higher mountains of the Organ range have a vegetation possessing a somewhat alpine character, and bear a scattering growth of pines and oaks, beneath which flourish a number of shrubby and herbaceous plants, quite similar to those found upon the more lofty ranges further to the west.

VEGETATION OF THE SIERRA MADRE.

As we approach the base of the Sierra Madre, passing over the extensive basin-plain already described, a gradual increase in the elevation is marked by a disappearance of those plants, which were common lower down, and the presence of others wearing a more alpine aspect. The surface is less bare than upon the plain below, and is covered with a closely matted grass, which gives a singularly rounded outline to the undulating land around the base of the mountain. Along the lower rocky swells grows the beautiful *Carphochete Bigelovii*, with *Anemone Caroliniana*, *Streptanthus linearifolius*, *Pentstemon Torreyi* and *Fendleri* are among the characteristic plants of these localities. There are but few shrubby plants, several species of *Ephedra* being among the most conspicuous. The streams are bordered by *Fraxinus velutinus* and *Juglans rupestris*, (the large variety,) and in moist places an old Californian acquaintance, *Anemiopsis Californica* makes its appearance.

Upon the mountains oaks and pines are found, mostly *Quercus Emoryi* and *Pinus edulis*, though in certain localities there is larger timber, consisting of *Pinus Chihuahuana* and *Abies Douglasii*. The smaller woody growth here includes several species belonging to the Californian mountain flora, such as *Cercocarpus parvifolius* and *Arctostaphylos tomentosus*.

Upon the summit of Ben More, further to the north, Dr. Bigelow discovered many plants indicative of an alpine flora, among these were *Frasera speciosa*, *Rubus Neo-mexicanus*, *Actinella Richardsonii*, and, perhaps, most remarkable of all, a small fern, *Asplenium septentrionale*, an European species not before detected on this continent.

The abrupt descent through Guadaloupe pass, upon the western slope of the ridge, presents a profusion of evergreen shrubs and flowering plants, including most of those which occur on

the summit ridge. Live oaks grow upon the rocky sides of the ravines, and with them is frequently associated a species of cedar. Among the more interesting of the herbaceous plants found here, are *Dryopetalon runcinatum*, *Vesicariæ*, and *Colomiæ*. The narrow valley of the stream which runs through the bottom of the Pass is wooded with ash, cotton wood, and Mexican sycamore.

VEGETATION OF THE UPPER VALLEYS OF SAN BERNADINO, SAN PEDRO, AND SANTA CRUZ WITH THAT OF THE ADJOINING MOUNTAIN RANGES.

The country embraced in the above limits, includes that portion of Northern Sonora, which divides the waters which flow north towards the Gila river from those whose course is south, towards the Gulf of California. It is, as we have before stated, diversified with high wooded mountains and upland plains, well watered valleys and dry and barren tracts. The arborescent growth is not essentially different from that we have noticed in speaking of the other divisions of country. Live oaks, the nut pine, cedar, ash, walnut and cotton wood are produced either upon the mountains or in the upland valleys. Its plains are covered with an uniform growth of upland grama grass, or in the more arid localities by mezquit and its thorny associates. This region furnishes a number of singular and highly interesting genera and species, most of which are described by Dr. Gray, in the second part of "Plantae Wrightianæ," in the Smithsonian Contributions. A reference to this work will give a better idea of the character and distribution of the flora of this district than our limits will allow us. As it occupies a station between several botanical divisions, so its flora partakes of that of those regions. The following list of some of the plants found here will be seen to embrace species belonging to California, Texas, Mexico, and New Mexico, viz: *Eschscholtzia douglasii*, *Zauschneria Californica*, *Eulobus Californicus*, *Bowlesia tenera*, *Anemone Caroliniana*, *Draba caroliniana*, *Corydalis aurea*, *Androsace occidentalis*, *Rutosma texana*, *Erodium texanum*, *Layia Neo-mexicana*, *Cowania Mexicana*.

VEGETATION OF THE LOWER SANTA CRUZ VALLEY, THE DESERT OF TUCSON, AND THE CENTRAL VALLEY OF THE GILA.

The region defined as above constitutes a very distinct botanical district, many of its peculiar plants not being found elsewhere. As we have mentioned in a previous sketch, the valley of the Santa Cruz, as it leaves the mountains in its northward course towards the Gila, gradually looses its fertile character, and finally terminates in the desert plain which forms the table land of the Gila. The vegetation of this tract comprises many of the forms which are found on all the barren plains of the country. Here, as in similar situations elsewhere, the mezquit and the creosote bush are conspicuous. Cacti are abundant here, and of various types. There are the low arborescent *Opuntias*, generally bearing proliferous fruit, as well as several elliptical-stemmed species. The enormous *Echinocactus wislizenii* and *Caespitose mammillarius* and *Cerei* are common, while, either standing solitary or collected in groups, the lofty *Cereus giganteus* towers above all. A species of misletoe is common upon the mezquit trees of this region.

The sheltered crevices of the neighboring mountains produce a species of agave, and in these localities we find *Franseria deltoidea*, *Encelia farinosa*, and *Perityle nuda*.

After the occurrence of rains the open plans are carpeted by a profusion of bright colored evanescent annuals, among the most conspicuous of which are *Vesicaria*, *Eschscholtzia Douglasii.*

A scanty growth of annual grama grass grows beneath the ever abundant *Larrea*, and the more alluvial portions of the tract are occupied by *Obione canescens.* In the deep cracks of the smooth washed surface *Bowlesia tenera* and some species of *Hosackia* are found. Near the immediate valley of the Gila we encounter species of *Œnothera*, *Simsia*, *Gaillardia*, and *Oligomeris glaucescens.*

The valley of the Gila has many features in common with that of the Rio Grande, and among the botanical productions common to both valleys we notice *Tessaria borealis* and mezquite, which latter forms dense "chaparral." The trees bordering the stream are mostly cotton wood and willow.

VEGETATION OF THE RIO GRANDE, CAÑONS, AND THE CONNECTED BASINS.

The flora of the cañons of the Rio Grande differs but little from that of the mountain ravines we have already alluded to. We find stunted shrubs rooted in the crevices of the rocks or scattered along the broken summits. The abrupt walls, whether of limestone or of igneous rock, afford favorable places for the growth of such plants as affect inaccessible localities. Here we meet two species of the well characterized genus *Laphamia*, viz: *L. dissecta* and *L. bisetosa*; also *Perityle aglossa* and *L. Parryi*, the pretty *Eucnide lobata*, *Cowania ericifolia*, and *emoryi*, a new genus of the order *Scrophulariaceæ*, dedicated to Major Emory.

In open places the vegetation peculiar to table lands makes its appearance.

In the more extensive basin of Presidio del Norte the flora partakes of the character of that of Mexico, and more tropical forms prevail. We find here *Kallstroemia grandiflora*, *Martynia violacea*, *M. arenaria*, *Talinopsis frutescens*, *Nicolettia Edwardsii*, and several species of *Boerhaavia. Cereus Greggii* is quite common, and the delicious fruited *Cereus stramineus* grows in its greatest perfection.

All the basins and cañons within these limits present a similar vegetation to the one just noticed.

In the Chisos basin a remarkable shrubby plant, allied to *Scutellaria*, was discovered. This Dr. Torrey has described as *Salizaria*, a new genus of the order *Labiatæ*. It has a straggling habit, and grows along the gravelly margins of dry water courses. The Sierra Carmel, upon the summits of which we should expect to meet with many botanical novelties, was passed, in a necessarily hurried march, in the month of November. Under these circumstances but little information could be obtained respecting its flora. Live oaks and the nut pine grew upon the higher ridges, and its upland plains and valleys were covered with luxuriant grama grass. The beautiful Santa Rosa valley is marked by the most attractive scenery. Its broad and fertile plains, with copious streams, bordered by gigantic cypress, sycamore, and pecan trees, with a back ground of high mountains, form a landscape upon which the traveller, wearied by the monotony of the sterile table lands, gazes with the keenest enjoyment.

From this point, on approaching the lower course of the Rio Grande, lying to the southwest, there is a sudden transition to the forms of vegetation before alluded to as characterizing this arid and thorn beset district.

AGRICULTURAL CAPACITIES.

We have attempted to give a sketch of the external features and spontaneous vegetation of the region of country along the United States and Mexican boundary line. It now remains to notice its adaptation to agriculture, and our remarks regarding this may all be embraced in one general conclusion.

Wherever the supply of water is constant, and sufficient for the purposes of irrigation, or wherever the regular overflow of the rivers can be relied upon to supply the amount of moisture required for the growth of crops, independently of the rains, in those places, and in those only, can agriculture be pursued with success.

The portions of the country best suited to cultivation are those which are capable of irrigation. For these the supply of water is obtained, not only from the larger rivers, as the Rio Grande and Gila, in which the head of water is increased by the construction of dams, but springs and small water courses, these often lying in mountainous situations, are laid under tribute.

In the course of the preceding sketch we have noticed the fact that the lower portions of the numerous valleys are of a sterile and unproductive character, for the reason that the water of the streams is absorbed before it reaches the portions which lie farther below, where, instead of a running stream, we only find a sandy bed, with the adjoining region unfit for the purposes of cultivation.

Those places which are supplied with the necessary moisture by the overflow of the rivers have a still more precarious dependence than those where irrigation is practiced. In these the quantity of water cannot be regulated, and they are exposed to the two extremes of scarcity or superabundance. One of the best examples of this system of cultivation is seen at Presidio del Norte, where the Concho unites with the Rio Grande. As these two rivers have different periods of high water the inhabitants are enabled to frequently secure two crops from the same fields in one season. In order to accomplish this the first crop, depending upon the overflow of the Rio Grande, must be sown and harvested in time to admit of the planting of the second crop, depending upon the later rise of the Concho. All this depends upon so many contingent circumstances that it is oftener attended by disappointment than by success, and, between the extremes of flood and drought, the people frequently suffer for want of food.

We have already noticed that a large extent of country, though destitute of streams to supply the water required in cultivation, receives from the atmosphere and clouds, in the form of dew and rain, sufficient moisture to permit the growth of the richest pasturage, and we have large districts of unequalled grazing lands, so broad and so abounding in herbage as to compensate for their deficiencies in other respects. Here the buffalo and antelope have already given place to wild cattle and horses, and we look for the time when these shall yield in their turn to domesticated flocks and herds, denoting that nomadic barbarism has been supplanted by civilization, with its ameliorating influences.

Many large tracts of this country must ever remain as deserts, being alike destitute of vegetable and mineral resources; but even these otherwise valueless regions are the very portions which present the fewest impediments to travelling, and, indeed, form natural highways to otherwise inaccessible parts of the country.

Other facts connected with this part of the subject, as regards character of climate and general

habitable condition of different sections of the country, will be dwelt on by others, or may be left to inference from what has been already noted.

BOTANICAL FEATURES.

The general botanical features of the region under examination next claim our attention, and in elucidating them, we shall be guided by the great natural divisions of country already indicated, as these furnish us plain lines of demarcation for separate botanical districts. Thus, there is a group of plants growing in the immediate vicinity of the sea, and which characterize the *Littoral Region;* above these, and confined more or less closely to the base of the mountains, is found another group indicating the *Supra-Littoral Region;* next to this, in the ascending order, is what may be termed the *Lower Mountain Region*, with a still different vegetation; and lastly, the *Proper Mountain Region*, producing plants peculiar to elevated localities.

LITTORAL PLANTS.

Among the exclusively littoral plants, some are common to the seacoast of nearly all countries; and these, such as the common *Salicornia*, are found here, and it is our intention to notice only those which are peculiar to this particular coast. We mention, first of all, two species of *Abronia*, (*A. arenaria* and *A. umbellata*,) which spread their trailing branches over the sand dunes which edge the sea-shore, and with their abundant foliage and beautiful umbelled flowers, give relief to the barren features of the landscape.

Growing with the *Abronias* a species of ice-plant (*Mesembryanthemum*) is frequently found. This has spreading succulent stems and triangular leaves. Its showy, though evanescent, pink flowers appear only in bright sun-light, and are succeeded by an edible, juicy fruit. In the same region, though less closely confined to the sea-beach, is another species of this genus, probably identical with the well known *M. crystallinum*. Here it is an annual, attaining its full size in the month of June, when it may be seen in large patches several rods in extent, presenting a thick bed of showy flowers. The leaves and stems are beset with shining glandular little warts, which contain a strongly saline fluid. The flowers, which are ephemeral and very abundant, appear in regular succession from June to August. After the flowering period the plant withers and dries up, leaving a thick mat of seed vessels, which remain closed until the commencement of the rainy season; the hygrometric tissue of the capsule then expands, under the influence of moisture, and the enclosed seeds escape and commence germinating. The dry remains of the plant are frequently burned for the sake of the ashes, which, being strongly alkaline, are used in making soap. Both the species here mentioned are so characteristic of the places they occupy that they would seem to be indigenous, but it is generally thought by botanists that they are introduced.

Among other plants characteristic of this region are *Œnothera viridescens*, (Hook.,) *Franseria bipinnatifida*, and a species of *Statice*, which grows near the head of San Diego bay, and seems hardly distinct from *S. Limonium*.

The common *Salicornia* here acquires a shrubby growth, and is frequently entwined with a species of *Dodder*, and accompanying it is found a new species of *Batis*, to which Dr. Torrey has given the name of *B. Californica*. *Frankenia grandifolia* grows here abundantly, associated with *Layia carnosa*, *Aromia tenuifolia*, and *Tuckermannia*. Among the shrubs peculiar to this

region may be noticed *Styphonia serrata*, with its thick evergreen leaves and *Obione canescens*, which is very abundant. A species of *Lycium*, with yellow flowers and red berries, is also conspicuous. This brief enumeration will serve to give a general idea of the characteristic vegetation of what we have termed the Littoral Region.

SUPRA-LITTORAL REGION.

Leaving the salt water, to the influence of which the characteristics of the preceding region are due, we come to the Supra-Littoral district, which presents a more striking variety in its vegetable forms.

This region includes a large proportion of shrubbery, to which, as it imparts peculiar features to the scenery, we shall especially direct our attention.

Before enumerating the plants which make up this woody growth, we would remark, that nearly all the shrubs of this region are inclined to form a stunted and bushy growth, which is evidently caused by exposure to d y seasons and sea breezes. There is also to be noted a leaden color of foliage, which does not depend upon the abundant growth of *Artemisiæ*, most of which possess this tint, but is common to a large proportion of the shrubs of this region. Both of these peculiarities of the vegetation have their influence upon the character of the landscape.

One of the most striking shrubs is *Eriogonum fasciculatum*, a neat evergreen, with small pink flowers, disposed in crowded umbels at the summit of prolonged stalks. Its season of flowering is during the midsummer, and it is generally characteristic of arid and barren tracts. *Isomeris arborea* (Nutt.) is frequently associated with this plant, and is distinguished by its yellow flowers and singular bladder-shaped pods. Here is also found *Rhus aromatica*, (Nutt.,) which frequently acquires quite an arborescent growth and occupies extensive tracts. It is clothed with shining evergreen leaves, which resemble those of the holly and exhale a strong odor like that of laurel. We also meet with *Photinia arbutifolia*, a handsome and often symmetrically formed shrub. This has rich evergreen foliage and beautiful bunches of white flowers, which are succeeded by scarlet berries. In favorable localities this sometimes attains the height of twenty feet, with a trunk six inches in diameter at the base. Another shrub deserving especial notice is *Simmondsia californica*, (Nutt.,) which has persistent leaves of a pale green color, and inclined to assume a vertical position. The plant is dioecious; the mature fruit is about the size of a hazel nut, and has a thin smooth three-valved husk, which separates spontaneously when ripe, disclosing a brown triangular kernel. This fruit, though edible, can hardly be termed palatable; its taste is somewhat intermediate between that of the filbert and acorn. It is, however, employed by the Indians as an article of diet, and is called by them "jajoba." The range of the *Simmondsia* extends to the base of the mountains, and it is found again, in similar situations, upon the eastern side, though less abundantly, as well as in the upper valley of the Gila, where it was detected by Major Emory, in 1846. Besides the shrubs above enumerated, the *Artemisia Californica* is widely diffused over this region; this is employed by the Mexicans as a popular remedy against cholera, under the name of "*Estafiat.*"

On the San Diego promontory there is a dense and intricate growth of shrubbery, to which both the people from the town and from the shipping have for a long time resorted for fuel. The greater proportion is furnished by *Eriodictyon*, which is a large shrub of from eight to twelve feet in height, with a diameter of from two to four inches. The wood is very close-grained, but brittle, and is charged with a resinous matter, which causes it to burn readily, even

when green. In this locality are also found the beautiful *Ceanothus rigidus*, *Pilavia dumosa*, *Adenostoma fasciculata*, and a species of scrub oak, all forming dense thickets.

We must not omit to mention the *Cactaceæ*, which here present species of all the extra tropical genera, as remarked by Dr. Engelmann in his memoir upon this family. These plants, from their striking and singular forms, impart a characteristic feature to the region they inhabit.

A new species of pine is peculiar to the district now under consideration. It occupies an arid tract near the ocean beach, about twelve miles north of San Diego, at the entrance to Solidad valley. In this locality (the only one in which it has been found) it forms a small sized tree, with rather open foliage. It is particularly distinguished by its long fascicles of leaves, which are in fives, and its large ponderous cones. This species, the specific characters of which will be found more fully described in the following list, I have ventured to designate, in compliment to a distinguished American botanist, as *Pinus Torreyana*.

Along the borders of the streams which traverse this Supra-Littoral district are found the common cotton-wood, (*Populus angustata*,) the *Platanus Mexicanus*, and, in the lower portion of the San Luis Rey valley, an *Alnus;* these, with various species of willow, make up the proper timber growth of this region. The undergrowth in these localities consists mainly of coarse representatives of the order *Compositæ*, conspicuous among which are several shrubby species of *Baccharis*. In moist places *Anemiopsis Californica* is frequently met with, and where the soil is rich the surface is covered by a rank growth of wild mustard (*Sinapis nigra*) and mallows, (*Malva obtusa*.)

The herbaceous and annual plants of this region are so numerous that we can only allude to a few of the more striking and characteristic.

It is in the latter part of winter and during the earlier spring months that California puts on her richest floral garb. Then the arid hills assume an aspect far different from their desert-like summer appearance. In February the moistened ground becomes arrayed in an assemblage of varied tints. The pale blossom of the elegant *Dodecatheon integrifolium* nod on every hill side, blue *Lupines* and rainbow colored *Gilias* deck the ground, and various ferns and mosses appear. The *Ribes speciosum* hangs its scarlet pendants, and the rich yellow flowers of *Viola pedunculata* are abundant everywhere. Even the numerous northern genus *Saxifraga* is represented here by more than one species. A large number of *Hydrophyllaceæ*, including species of *Nemophila*, *Phacelia*, and *Eutoca*, are among the early tokens of spring, while the orange colored flowers of *Escholtzia*, the pale blooms of *Platystemon*, and the pink ones of *Meconopsis*, show that the poppy family contribute largely to make up the vernal flora. Among the twiners are a species of *Clematis* that is either new or a variety of *C. pauciflora* and *Megarrhiza Californica* of Torrey; the latter plant, which hangs its prickly burs from almost every bush, is remarkable for the enormous size of its root. Further to the north the valleys are clothed with a luxuriant growth of wild oats, (*Avena fatua*,) which is so extensively naturalized that it gives to every fertile tract the appearance of a cultivated field. The wide plains that border the sea in the neighborhood of Los Angeles are covered with the richest pasturage. The *Erodium cicutarium*, (called here "pin grass," and furnishing a highly esteemed fodder,) with several species of wild clover, (*Trifolium* and *Medicago*,) are mingled with a variety of other herbage, and thus serve to give a meadow-like aspect to this teeming land. Such is the general appearance of the country from February to April, inclusive, and then is to be seen the glory of the Californian flora.

THE LOWER MOUNTAIN REGION.

As we begin to enter the mountain range we come upon what we have termed the *Lower Mountain Region*, the intervening slope between the base of the mountain and the summit ridge. Here the species of plants last considered disappear, and are replaced by an almost entirely different assemblage of vegetable forms.

The *Adenostoma fasciculata*, which we have before alluded to, is frequently found covering entire hills. This plant is not peculiar to this region, but grows on all exposed situations, from the lowest to the most elevated. It has fine and thickly set dark green foliage, and forms a conspicuous feature in the landscape. From its habit of growth it may be considered as the heath of this country, though it belongs to a different family, that of the *Rosaceæ*.

As the *Artemesias* disappear, scrub oaks show themselves on the steeper mountain slopes; and, as the valleys become narrower and more rocky, we find the California live-oak (*Quercus agrifolia*.) This forms a large spreading tree, the holly-like evergreen foliage of which adds to the beauty of the mountain scenery. In the more northern sections of the country this oak is met with in the vicinity of the sea; but as far south as San Diego it grows upon the mountain slopes only, and its presence denotes a considerable elevation. It is usually of stocky growth and unwieldy shape. Its wood is coarse grained and liable to speedy decay; hence it is but little esteemed for its timber. It has, however, a very thick bark, which will, no doubt, in time, be found of great value as a tanning material.

Among the shrubs of this region which deserve notice is *Arctostaphylos tomentosa*. This species is said to form quite a good sized tree at the north; but in the district at present under consideration it occurs only as a shrub, rarely attaining the height of fifteen feet and a diameter of from two to four inches at the base. It is a handsome evergreen bush, sending off numerous branches close to the ground. Its bark is smooth, of a reddish color, and splits off in transverse shreds. The wood, which is very close grained and durable, is an excellent material for small turning work. It bears a small red berry, resembling our well known "bear berry," though less astringent, which possesses acid properties, and, under the name of *Manzañita*, ("little apple,") is in common use as an ingredient of cooling drinks.

Another plant belonging to this region is *Cerasus ilicifolius* ("wild plum.") This is also an evergreen, and has thick pale green spinously serrate leaves. Its fruit, when mature, is of a yellowish pink color, with a pulpy external portion scarcely exceeding a line in thickness. Though the fruit has a pleasant taste, it would scarcely be considered worth eating in a country which was not, like this, almost destitute of wild fruits.

The scrub oaks growing here are all evergreen, with rigid coriaceous repandly toothed leaves, which are very variable in size and shape, even in the same individual. The fruit of all the species is of about the medium size and form, and is collected in large quantities by the Indians, who use it in preparing their favorite article of food, which they call "Atole."

Cercocarpus parvifolius is another characteristic plant of this region, and is remarkable for its long, spirally-tailed seeds. It is quite a handsome shrub, growing in clumps, and throws up wand-like branches to the height of five or ten feet. This is pretty exclusively confined to the higher elevations, and even reaches to the summit ridge.

We notice, also, as an inhabitant of these localities, *Frangula Californica*, Gray, (*Rhamnus*

tomentellus, Benth. Pl. Hartweg,) a species which appears to have a wide geographical range. Mr. Hartweg's specimens were collected among the mountains of the Sacramento valley, and we have seen others which were found by Dr. A. Randall near the head waters of the Gila river.

In the more southern portions of this district, and growing very abundantly in the vicinity of the boundary line, we find the pretty *Adenostoma sparsifolia*, (Torr. in Emory's report.) This grows more plentifully among the mountains than the already mentioned *A. fasciculata*, though the two agree closely in habit and are frequently found side by side. It grows in clumps, formed of numerous slender branches, and attains a height of four or eight feet. The upper part of each branch divides near the summit into a fine spray, clothed with yellowish green leaves, and, in the proper season, thickly set with small white flowers. The leaves and upper stems are covered with a glandular varnish, which exhales a pleasant aroma resembling that of *Aspidium fragrans.*

Other shrubs that may be noticed as characteristic of this region are the *Eriodyction Californicum* and *Chamæbatia foliolosa*, (Benth.;) the latter recently figured by Torrey in Plantae Frémontianae, in the Smithsonian Contributions. The shrubbery of this district is marked by a very intricate mode of growth, especially that upon the Coast Range of mountains. Here, so densely interwoven is the close mass of stunted bushes, that it is nearly impossible to force one's way either up or down the mountain sides.

This region furnishes a large variety of herbaceous plants. The greater number of those which, in the accompanying list, are referred to the "Mountains east of San Diego," have their localities in this district. Among the crevices of rocks grow several species of ferns, of the genera *Aspidium*, *Gymnogramma*, *Cryptogramma*, *Adiantum*, *Woodwardia*, &c. Mosses are rare, and but few lichens are observed ; among the latter are the singular *Ramalina Menziesii*, Taylor, (*R. retiformis*, Menzies,) and species of *Parmelia*, *Roccella*, and *Evernia.*

THE PROPER MOUNTAIN REGION.

The immediate summit ridge, which is elevated to a height of from 3,000 to 5,000 feet above the sea, bears a rather meagre fringe of pines and other trees of the same family. This imparts a peculiar feature to the landscape, and recalls to mind the snows and wintry climate of high latitudes. Of the genus *Pinus* proper we find four species, some of them being dwarfed representatives of those forest monarchs which are so abundant and. conspicuous further to the north.

In this region we encounter, though rarely, the majestic *Pinus Lambertiana*, with its enormous drooping cones. *P. Sabiniana* is more abundant. This species is remarkable for its singular fruit, each scale of which is tipped with a hard curved spine. The size and shape of this fruit are much like that of the pine apple.

Another species, *P. deflexa*, (Torr.,) has a trunk of elegant columnar form, and frequently attains to majestic proportions, even in these unfavorable situations. The fourth species is a *nut-pine*, and is described by Dr. Torrey in the accompanying enumeration as *Pinus Llaveana*.

This species is somewhat isolated in habit, and, as far as we have ascertained, has a very limited range near the dividing ridge and south of the boundary line. In the character of its fruit and foliage this species is closely allied to *Pinus monophylla*, (Torr.,) though quite dis-

tinct. It has a very compact, symmetrical form. The young individuals present a regularly oval mass of foliage, which, reaching the ground, completely conceals the stem and branches. Older plants attain a height of from 25 to 40 feet, and show a short trunk which supports a rounded head. This species bears an edible nut, which is collected by the Indians as an article of food.

Besides the pines, the other *Coniferæ* are *Abies Douglasii* and *Thuja occidentalis.*

We always find upland oaks associated with the pine growth of this region. These include the common *Quercus agrifolia* and *Q. densiflora*, the latter species being the more common upon the higher ridges. It is of stocky habit, and has wide-spreading branches, which form large spherical heads. The bark of this tree appears like that of the elm, and the wood is close-grained and durable.

There is another oak, which has deciduous leaves, the two preceding being evergreens. It seems to be closely allied to or identical with *Q. tinctoria*. Of this species there are two varieties which are only distinguishable by the fruit, which in one has a large and prominent gland, while in the other the gland is almost concealed by the cup—characters which seem to be constant in the same individuals.

The shrubbery of this region presents but little variety, and consists mostly of species which have been enumerated as belonging to the Lower Mountain district.

We naturally expect to find here the undergrowth which, in all countries, accompanies the pine forest. Here, indeed, grows the woodland strawberry, (*Fragaria vesca*,) while liliaceous plants are represented by *Cyclobothra alba;* we also meet with *Viola lobata*, a recently described species of Bentham. But of *Orchidaceæ*, so common elsewhere in such localities, we have only a solitary species of *Platanthera*. Carices are sparsely distributed, and *Potentilla*, so common in northern latitudes, has a place in our catalogue. The well-watered valleys are covered with a fine sward of native grasses, and lichens of sparkling yellow decorate the decaying pines.

VEGETATION OF THE EASTERN SLOPE OF THE MOUNTAINS, THE DESERT, AND THE BASIN OF THE COLORADO.

The features which vegetation presents, within the limits of this section, may be best described by noticing those which would naturally attract the attention of the traveller. The vegetation of the summit ridge differs but little upon its eastern and western side; but as we go further down the abrupt eastern descent a new group of plants comes into view, one which presents a marked contrast to that occupying the corresponding Lower Mountain region of the Pacific side. Here thorny shrubs and stiff-stalked plants of strange aspect meet the eye. The ashen colored mountains, which in the distance seem entirely destitute of vegetation, produce in their rocky cañons and crevices a great variety of singular forms. Cacti again appear, and, except in one or two instances, are all different from those found on the Pacific slope. There are several *Opuntias*, both those with cylindrical and those with elliptical stems. The gigantic *Echinocactus cylindraceus* lifts its bristling trunk from the clefts of the rock, and the humbler mamillaries are also met with. A new species of *Cereus* (*C. Engelmannii*) grows in these localities, and bears a deliciously palatable fruit.

On the upland plains, near the edge of the desert, we find a beautiful shrub with willow-like foliage and trumpet-shaped flowers. This showy plant is *Chilopsis linearis*. Here we also encounter a species of *Krameria*, having long and spiny branches and deep purple flowers, and

new *Rhamnaceous* shrub (*Zizyphus Parryi*, Torr.) makes its appearance. Upon the hill sides here grows a species of *Agave*, the "Mezcal" of this region. The root of this, when prepared by a kind of underground roasting, serves as an important article of food for the Indians. Here we also find the "Spanish Bayonet," a species of *yucca*, which presents its spine-armed leaves to the traveller. As we proceed, the lower valleys assume a complete desert-like character. The "creosote bush" (*Larrea Mexicana*) makes its first appearance, to be our constant companion for the remainder of the journey. Perhaps the most striking plant of these wastes is the *Fouquieria splendens*. This grows in clumps, consisting of from twelve to twenty long wand-like branches, which, springing from the main stem close to the ground, rise to the height of from ten to fifteen feet; the stems are beset with rows of spines, from the axils of which grow small fassicles of leaves. Its bright scarlet flowers only appear at the time when the stalk is destitute of leaves, and hence the whole plant has too naked an appearance to exhibit much beauty.

The well-known mezquite, (*Algarobia glandulosa*,) which we shall notice more particularly hereafter, now becomes a common shrub; and near the base of the mountains a species of palmetto is seen growing in the clefts of the rocks. Its appearance in these localities invariably indicates the presence of water, though this is frequently found to be too saline for use.

As we advance upon the desert plain a very distinct character of vegetation presents itself. On all the gravelly ridges near the mountains we find the stiff stalks of *Fouquieria*. In the furrowed rain-water courses there is usually a growth of shrubbery larger than in other portions of the desert. In such situations a small tree of graceful outline occurs—the *Dalea spinescens*, (Gray, Pl. Thurb.) The finely divided branches of this plant are all terminated by sharp points, and are covered with a silvery pubescence. It bears a few abortive leaves, and an abundance of bright blue flowers. Further on in the desert the vegetation is chiefly composed of *Larrea mexicana* and *Obione canescens*. Near the borders of the lakes and gullies which mark the position of "New river" we find a greater variety among the plants. A very rank growth of a species of *Amaranthus* borders the lakes in wet seasons, and on the upper clay borders of "New river." The annual "Gramma grass" yields, after the rains or the overflows of the rivers, a rapid growth of evanescent but highly nutritious fodder. We find in these situations a species of *Boerhavia* and one of *Kallstroemia*. The mezquite trees near these places attain a considerable size, and frequently bear upon their branches a vigorous growth of a peculiar misletoe.

As we descend from the table land of the desert, by the steep bluff which bounds the alluvial bottoms of the Colorado river, the vegetation consists almost entirely of dense thickets of mezquite, but it assumes a more varied character when we reach the alluvial tracts. On all places liable to overflow the cotton-wood and willow abound, the latter forming a thicket along the immediate margin of the river. The higher grounds near the river seem especially favorable for the mezquite, and we find it growing with greater luxuriance than we have seen it elsewhere. In some situations it forms thorny and impervious thickets, but it is usually sufficiently scattered to permit an easy passage for man or beast. The irregular growth of this tree renders it unfit for most of the uses for which timber is needed. As an article [illegible] is scarcely inferior to hickory, and the wood is very durable. The fruit of the mezqui[illegible] greatest value to the [illegible] in these regions. It is a long bean-shaped pod, which is greedily devoured by cattle [illegible]nd to be highly nutritious. A gum exudes from th[illegible]ich closely resembles [illegible]c in its chemical characters. The production of the [illegible]vidently increased by

incisions made at certain seasons of the year, and especially by the proximity of fire; facts which may be turned to account if the gum should ever be collected as an article of commerce. Growing with the mezquite, though preferring a moister soil, is the *Strombocarpa pubescens*, or "screw bean," as it is called, on account of the twisted form of its pods. It is usually of small growth, and is rarer than the mezquite. The fruit is also used as food for animals, but is less valuable than that of the mezquite.

The principal undergrowth consists of *Tessaria borealis*, a shrubby composita, which grows upon light dry soil in thick masses. Its straight branches are from four to eight feet high; the younger portions of which, as well as the leaves, are covered with a silvery pubescence. In low saline places we find several chenopodiaceous plants; Salicornia, among others, which here becomes a stout shrub of two or three feet in height. These localities also furnish the singular *Dicoris*, a notice of which appears in Dr. Torrey's Appendix to Emory's Report.

A kind of soft cane grass (*Arundo Phragmites*) grows along the river's margin, and is the principal reliance for fodder in this region. Two other kinds of grasses are met with in similar situations, the seeds of which are collected for food by the Indians living near the river. One of these is a *Panicum*, the seeds resembling millet. The other has digitate spikes, resembling *Eleusine*. The flour made from the seeds of these wild grasses is husky, but quite palatable; and it may be remarked, that species of the genera from which it is derived are in common cultivation in the eastern hemisphere.

Many ravines occur on the eastern edge of the desert, by means of which its drainage reaches the valley of the Colorado; these furnish some of the most interesting plants in the district. Here we again encounter the silvery chapparal tree, before noticed, (*Dalea spinescens;*) also, another of the same natural family, *Olneya Tesota*, (Gray, Pl. Thurb.) This is a good sized tree, having much the habit of the common locust. Its fruit consists of short irregular pods, which contain two large orbicular seeds. The flowers were not seen. We also find here the tree frequently referred to in Major Emory's Report as the "green-barked acacia" of the valley of the Gila. This is *Cercidium floridanum;* and in these localities it is quite a large tree, resembling the weeping willow in habit. Its long drooping branches bear an abundance of pods.

Fouquieria grows upon all the gravelly hills, and the cactus family are represented by a slender, cylindrical, much branched, and horribly spinose *Opuntia*, (*O. ramosissima*, Engel. n. sp.)

Much yet remains to be learned respecting the vegetation of this singular region, especially that of the eastern base of the mountain range. Only enough is known at present to prompt the desire of a thorough botanical exploration of its floral riches.

On taking leave of this branch of our subject, we briefly notice a few general facts connected with the vegetation of the country under consideration. One of the most striking botanical characteristics of this region, and one which attracts the attention of the most casual observer, is the great preponderance of evergreen shrubs. This is not only true of the seacoast and desert, but also of the higher mountain ranges. This fact has an important bearing upon the aspect of the scenery, which would otherwise be desolate indeed in a country exposed to an uninterrupted drought of seven months duration in each year. Though the verdure has not the vivid freshness of spring, but is even inclined to a leaden hue, yet the relief to the eye will be readily appreciated when contrasted with those complete deserts, whose universal barrenness seems increased rather than relieved by the repulsive spine-clad cacti or bristling yuccas.

Another peculiarity is the general prevalence of a balsamic odor. This is especially true of

the most arid tracts, and serves to give a somewhat stimulating property to the atmosphere. This odor is due not only to the abundance of artemisias, but to a great variety of plants, especially those of the Labiate order, such as species of *Salvia* and *Audibertia*. Most of the *Compositæ* found here are more or less aromatic. In all cases the aroma seems to depend upon a resinous exudation, which probably performs the office of checking evaporation, by closing the pores of the leaves, and thus enables the vegetation of these arid tracts to survive the long continued dry season.

The effect of the peculiarities of the climate upon the vegetation of this region may be noticed here. The singular alternations of wet and dryness, heat and cold, produce a confused blending of seasons. Upon the immediate coast most of the annuals and those perennial plants having a succulent nature make their growth during the winter months, that being the season of rain.

In this latitude vegetable growth meets with but very little impediment from cold, as in these months the temperature rarely falls below the freezing point. When the November rains commence falling vegetation puts on its spring aspect, every barren hill is soon clothed in green, and by midwinter flowers are blooming in profusion everywhere, and many have even passed their brief season and have gone to seed. At this time the larger trees and deciduous shrubs drop their leaves, and only resume them at the close of the rainy season. This seeming exception to the general activity of vegetable life during the winter months is accounted for by the fact that this class of plants alluded to is almost exclusively confined to the margins of streams, hence their growth depends less upon moisture from the atmosphere. As dryness advances, during the months of May and June, all the evanescent forms are swept away, and the profusion of spring flowers gives place to the scanty products of the arid summer. Finally, these two yield to a still more sparse autumnal growth, which is mainly confined to the courses of streams. On the mountains, however, we find the alternation of seasons more like that of temperate climates. Here there is a winter sufficiently cold to prevent and a summer sufficiently moist to favor vegetable growth, which continues throughout the latter season. The scanty vegetation upon the eastern side of the mountains and along the Colorado is but partially watered by the uncertain showers of summer, and depends mainly upon the regular overflowing of the river. As the waters recede, the inundated places are speedily covered by a very rapid growth.

An enumeration of the plants observed, with precise and detailed accounts of the most interesting among them, will be found in the accompanying memoir by Professor John Torrey.

AGRICULTURAL CAPACITIES.

We will conclude this general sketch by briefly considering the agricultural capacities of the country, as indicated by its general geological features, its climate, and the natural botanical productions.

Commencing at the coast, we notice a prominent wall of high tertiary stuff abutting on the sea. This portion, which is thinly clad with verdure at any season, presents an uninviting aspect. Hence it happens that to the traveller who views it from the sea it is forbidding in the extreme. At a variable distance inland, however, where we find the line of settlements, the rounded hills are covered with a deep rich loam, which in the spring produces a luxuriant crop of wild oats. The river margins of this section are also of the same fertile character, and

support a rank vegetation. Along this belt, too, lie fruitful plains, which, when clothed with the pasturage of early spring, excite the admiration of the beholder.

As we approach the junction of the tertiary and the granitic exposures barrenness again prevails. The thin soil, which is here confined to the crevices of the rocks, produces a growth of shrubbery, the stunted character of which indicates its unproductive nature. Proceeding further inland, we find among the basin-shaped mountain valleys large trees and rich pasture grasses, denoting that a fertile soil again appears. This character, more or less varied by local causes, extends to the summit level.

Occasionally terraces are found upon the higher mountain slopes which possess a productive clay soil, well adapted to the growth of winter grains. In general, however, these localities are rugged and barren. From these facts it would appear that this country possesses a large share of fertile soil, but in estimating its agricultural capacities we must also take into consideration the peculiarities of the climate if we would arrive at correct conclusions. It is owing to the fact that this latter is not taken into account that such discrepancies occur in the statements of travellers, who, according to the season at which they view the country, pronounce it sometimes a desert and at others a garden. Let any one follow up the coast in the month of March, and pass over the verdant plains that stretch towards the sea; let him see every valley and hill clothed in the rich green of the wild oats, and every snow-fed stream running with clear water, and he will exclaim, "This is Arcadian land, the realization of the poet's song." But let him pass over the same region in the month of August or September, when nearly every green thing has disappeared, when, instead of soft breezes wafting over refreshing verdure, the heated air rises with a wavy tremor from the parching ground; let him visit the land when nothing remains of the streams but the dry beds, and the herds of cattle, which before were roaming at large in the enjoyment of the rich pasturage, are gathered in herds around the margins of the stagnant marshes, and the same traveller will pronounce the country to be a desert unfitted for the abode of man or beast.

Here, then, we have two widely differing extremes, between which lies the proper mean.

The true mode, then, of estimating how far this region is adapted to agriculture is to follow up the courses of the various streams which run towards the sea, and note the point at which the supply of water is constant, the width of the valley, and the nature of the soil at these places, and also whether the character of the surface will admit of irrigation. We then have the data for forming a just opinion as to the value of the land for husbandry. If the observations are made further inland, among the mountains, then the increase of elevation must be taken into account. The winter here brings snow, and the summer is shorter than it is near the sea level. Hence the length of the growing season is diminished, but while it continues growth is extremely vigorous, especially in the month of June. The abundant supply of water, wood, and the bracing mountain air, compensate for a frequently inclement winter, the difficulty of transportation, and a short summer season.

The founders of the early mission establishments in this region seem to have had a clear appreciation of these facts, and their locations were wisely selected, so as to embrace the widest extent of cultivable land, and the best situations for farms are still found to be in their vicinity. These missions occupy the valleys of the main water-courses, generally at that point where the supply of water can be depended upon in all seasons. Their aqueducts, bringing water from

towards the sources of the streams or from local springs, were often of great length and magnitude. The one belonging to the San Diego mission, for instance, is a continuous wall of masonry for the distance of nearly three miles. The upper portion of each valley was generally occupied by a branch dependency of the main mission, thus securing the entire control of the agricultural resources of the valley.

In regard to the eastern slope of the mountain but little additional need be said. In the immediate vicinity of the summit ridge arable land is found, but the more precipitous slope renders this too limited in extent to claim much attention. Desert valleys and pent up cañons succeed between this and the great plain. As far as all agricultural purposes are concerned this is truly a desert, though it is not, as is generally supposed, a mere waste of shifting sands, and destitute of every kind of vegetation.

We have already noticed that several shrubs are peculiar to this tract, which, if they serve no other purpose, at least afford relief to the eye.

The borders of "New River" being subject to frequent if not regular overflow, would seem to present some opportunities for the limited cultivation of maize, beans, pumpkins, and melons, such as is practiced by the Indians on the Colorado, and the existence of "gramma grass" on the higher adjoining ground would seem to indicate that quickly maturing cereals might be raised here.

The supply of water might, moreover, be rendered more constant and equable by the construction of artificial reservoirs and ditches. Still we must admit that any system of cultivation must be very precarious in a location where its success depends upon such variable causes.

The remarks respecting "New River" apply in a great measure to the Colorado. Here the cultivation is, of necessity, confined to those portions of the valley that are subject to overflow and the consequent deposition of fertilizing sediment. The higher adjoining lands, being without the reach of these influences, are, from their extreme aridity and the light porous nature of their soil, quite unfit for any cultivation.

All the Indian settlements upon the Colorado with which we are acquainted are located with reference to an overflowed portion of the river margin. Near the junction of the Gila with this river one Indian village occupies an old river bed, which, when the river is high, is completely covered by the stream. Another settlement is situated upon a low alluvial delta lying between the two rivers, and a third is built in a slough. These are also flooded at high water. The articles cultivated by these Indians are principally maize, beans, and pumpkins. No doubt that cotton, sugar, and many of the sub-tropical fruits would succeed here, but our present knowledge respecting the extent of arable soil, of the vicissitudes of the climate, and of the character of the different seasons, is too vague to warrant any but the merest conjecture in regard to its future agricultural importance.

UNITED STATES AND MEXICAN

BOUNDARY SURVEY,

UNDER THE ORDER OF

LIEUT. COL. W. H. EMORY,

MAJOR FIRST CAVALRY, AND UNITED STATES COMMISSIONER.

BOTANY

OF THE BOUNDARY,

BY

JOHN TORREY.

BOTANY.

RANUNCULACEÆ.

Clematis reticulata, *Walt.* var.? foliis tenuioribus, etc., *Gray, Pl. Wright*, 2, *p.* 7. Valley of the Cibolo, Chihuahua; *Bigelow.*

Clematis Pitcheri, *Torr. & Gray, Fl.* 1, *p.* 10. Hills of the Limpia and other places in western Texas; *Bigelow.*

Clematis ligusticæfolia, *Nutt.; Gray, Pl. Fendl. p.* 3. Copper Mines, New Mexico; *Bigelow,* and westward to California; *Nuttall, Fitch.*

Clematis lasiantha, *Nutt. in Torr. & Gray, l. c.* (Tab. I.) In various places, California, *Parry.* C. pauciflora, *Nutt.*, of which I have a specimen in fruit, kindly sent to me by that excellent botanist, appears to be a form of this species with smaller leaves and flowers than usual. Dr. Parry also found it at San Diego, but with male flowers only. Seemann refers C. lasiantha to C. Peruviana, *DC.*

Clematis Drummondii, *Torr. & Gray, l. c.* Along the tributaries of the Rio Grande, western Texas, and the Mexican States west of that river.

Atragene alpina, *Linn. Sp. p.* 764. A. Ochotensis, *Pallas; Gray, Pl. Fendl. p.* 4. Sides of Ben Moore, near the Copper Mines of New Mexico; April; *Bigelow.*

Thalictrum Fendleri, *Engelm. in Pl. Fendl. p.* 5; *Gray, Pl. Wright, p.* 7; *Torr. Pl. Whipple, p.* 61. Copper Mines, New Mexico; *Bigelow,* Sierra del Pajarito, Sonora; *Schott,* Monterey. California; *Parry.*

Anemone Caroliniana, *Walt. Fl. Car. p.* On the upper Rio Grande, western Texas, and Chihuahua. Root an oblong black tuber.

Myosurus minimus, *Linn. Sp. p.* Banks of streams, Chihuahua, April; *Bigelow.* On the lower Rio Colorado, Sonora; March; *Schott.*

Ranunculus trachyspermus, *Engelm. & Gray, Pl. Lindh.* 1 *p.* 3. Prairies of western Texas; *Wright.* Sonora; *Schott.* The two varieties of Engelm. (l. c.) pass into each other.

Ranunculus aquatilis, var. divaricatus, *Gray, Man. ed.* 2, *p.* 7. R. divaricatus, *Schrank; Gray, Pl. Wright,* 2, *p.* 8. On the Mimbres, New Mexico; May--July; *Bigelow, Thurber.*

Ranunculus Cymbalariæ, *Pursh; Torr. & Gray, Fl.* 1, *p.* 17. San Elceario, etc., on the Rio Grande; June; *Bigelow.*

Ranunculus affinis, *R. Brown; Hook. Fl. Bor.-Amer.* 1, *p.* 12, *t.* 6. Copper Mines, New Mexico; June—August; *Bigelow.*

Ranunculus hydrocharoides, *Gray, Pl. Thurb. p.* 306. Wet meadows, Mababi, Sonora; *Thurber.*

Ranunculus macranthus, *Scheele in Linnœa,* 21, *p.* 585. R. repens, var. macranthus, *Gray, Pl. Lindh.* 2, *p.* 141, *& Pl. Wright,* 2, *p.* 8. Wet grassy places on the Limpia; June—July; *Bigelow.*

RANUNCULUS REPENS, var. MARILANDICUS, *Torr. & Gray, Fl.* 1, *p.* 31. Hills west of the Copper Mines, New Mexico; June; *Bigelow.*

RANUNCULUS CALIFORNICUS, *Benth. Pl. Hartw. p.* 295; *Torr. Pl. Whippl. in Pacific R. Road Expl. p.* 62. Monterey, and near San Francisco, California; March—May; *Thurber, Parry.*

RANUNCULUS HEBECARPUS, *Hook. & Arn. Bot. Beechey, p.* 369; *Torr. l. c.* R. parviflorus, *Torr. & Gr. Fl.* 1, *p.* 25, non *Linn.*

DELPHINIUM AZUREUM, *Michx. Fl.* 1, *p.* 314. On the upper Rio Grande, and westward to California; April—June.

DELPHINIUM CALIFORNICUM, *Torr. & Gray, Fl.* 1, *p.* 31. Monterey, California; May; *Parry.*

DELPHINIUM PATENS, *Benth. Pl. Hartw. p.* 296. In various parts of California, near the coast; *Parry, Thurber.*

DELPHINIUM MENZIESII, *DC. Syst.* 1, *p.* 355; *Lindl. Bot. Reg. t.* 1192. Near San Diego, etc., California; March; *Parry.*

DELPHINIUM DECORUM, *Fisch. & Mey. Ind. Sem.* (3) *Petrop. p.* 33. Monterey, California; May; *Parry.* Napa county, *Thurber.*

DELPHINIUM SCOPULORUM, *Gray, Pl. Wright,* 2, *p.* 9. Hills near the Copper Mines, New Mexico; *Bigelow.*

DELPHINIUM NUDICAULE, *Torr. & Gray, Fl.* 1, *p.* 33 *&* 661. Var. caule folioso. Napa county, California; March; *Thurber.*

DELPHINIUM CARDINALE, *Hook. Bot. Mag. t.* 485. D. coccineum, *Torr. in Bot. Whipp. Rep. l. c. p.* 62. (TAB. II.) Mountains east of San Diego, California; *Parry.* This may prove to be a variety of the last species, but the lobes of the leaves are much longer, and taper to a narrow point. It is a splendid plant, with large scarlet flowers. Dr. Parry collected it in the year 1850, and I have distributed specimens of it under the MS. name quoted above. Our plate was engraved before the figure in the Botanical Magazine was published.

AQUILEGIA LEPTOCERA, var. FLAVA, *Gray, Pl. Wright,* 2, *p.* 9. Organ mountains, near Doña Ana, New Mexico, and on hills at the Copper Mines; April—July; *Parry, Bigelow.* Banks of rivers, Sonora; *Thurber, & Capt. E. K. Smith.*

AQUILEGIA CANADENSIS, *Linn.; Torr. & Gray, Fl.* 1, *p.* 29. *β. Torr. in Bot. Whipp. l. c. p.* 62. Ravines and hill sides, near Monterey, California; May; *Parry.*

PÆONIA BROWNII, *Dougl.; Bot. Reg.* 25, *t.* 30. Sides of hills above and below Sta. Barbara; also near San Luis Obispo, California, May; *Parry.* The carpels vary in number from 3 to 5.

MENISPERMACEÆ.

COCCULUS CAROLINUS, *DC. Syst.* 1, *p.* 524; *Gray, Gen. Ill.* 1, *t.* 28. Wet ravines, valley of the Pecos, and on the lower Rio Grande, Texas.

BERBERIDACEÆ.

BERBERIS (MAHONIA) AQUIFOLIUM, *Pursh, Fl.* 1, *p.* 219, *t.* 4, (*excl. fig.* 7.) Near Monterey, California; *Parry,* and on hills at the Copper Mines, New Mexico; *Bigelow.*

BERBERIS (TRILICINA) FREMONTII; foliis 2—3-jugis, jugo ad basim petioli approximato, foliolis ovato-lanceolatis vel late ovatis repando-dentatis; dentibus spinescentibus; racemis paucis

erectis laxe 5—7-floris folium subaequantibus; pedicellis flore subduplo longioribus. B. trifoliata, *Torr. Bot. Whipp. p.* 63, *ex parte, non Moric.* Western Texas and New Mexico; *Bigelow, Thurber.* Cañon of the Guadaloupe river, Sonora; *Capt. E. K. Smith.* A handsome shrub 5—10 (rarely 15) feet high. Leaves coriaceous and rigid; leaflets 1—2¼ inches long, sometimes truncate or cordate at the base, the middle one usually much longer than the others, and with more numerous teeth; the lowest pair situated close to the base of the petiole. On some specimens the primary leaves are reduced to small branching prickles, as in Berberis proper. Racemes 1—3 together; the pedicels 4—5 lines long. Flowers about as large as in the common Barberry. Filaments inappendiculate. Berries somewhat ovate, dark blue, about the size of currants. This species was first discovered by Frémont, in 1844, on the tributaries of the Rio Virgen, in southern Utah. It is nearly allied to B. trifoliata, but differs in the number of leaflets, longer racemes, and blue berries.

BERBERIS TRIFOLIATA, *Moric. Pl. Nouv. Amer. p.* 113, *t.* 69; *Gray, Pl. Lindh.* 2, *p.* 142. Western Texas, and on hills near the Copper Mines, New Mexico; *Bigelow.* Westward to Chihuahua, Nuevo Leon, etc.; *Gregg, Thurber.* The bright red acid berries are used for tarts, and are less acute than those of B. vulgaris.

NYMPHAEACEÆ.

NUPHAR ADVENA, *Ait. Kew. ed.* 2, 3, *p.* 295. In water, Devil's river, western Texas; Sept. in fruit; *Bigelow.*

PAPAVERACEÆ.

ARGEMONE MEXICANA, *Linn; Torr. & Gray, Fl.* 1, *p.* 61. On the lower Rio Grande, Texas; *Schott.* Westward to California; *Parry.*

Var. HISPIDA A, hispida, *Gray, Pl. Fendl. p.* 5, Sonora; *Thurber.*

ARGEMONE FRUTICOSA, *Thurb. in Gray, Pl. Thurb. p.* 306. La Peña, Coahuila; *Thurber.*

MECONOPSIS HETEROPHYLLA, *Benth. in Lond. Hort. Trans.* (*ser.* 2) 1, *p.* 407; *Hook. Ic. t.* 733. Near the sea beach at San Diego, and at Santa Barbara, California; February; *Parry.* Our specimens are certainly annual.

ESCHSCHOLTZIA CALIFORNICA, *Cham.; Torr. & Gray, Fl.* 1, *p.* 664. Monterey, and various other parts of California; *Parry, Thurber.*

ESCHSCHOLTZIA DOUGLASII, *Hook. & Arn. Bot. Beechey, p.* 320. Ravines along the Rio Grande from Frontera to Eagle Pass; also in Chihuahua and Sonora; February—April.

PLATYSTEMON CALIFORNICUM, *Benth. l. c.; Lindl. Bot. Reg. t.* 1679; *Torr. & Gray. Fl.* 1, *p.* 65. Grassy places in various parts of California; *Parry, Thurber.* Most of the specimens belong to the variety *leiocarpum.* "Flowers ochroleucous, turning yellow in drying."

PLATYSTIGMA LINEARE, *Benth. l. c.; Hook. Ic. t.* 38; *Torr. & Gray, Fl. l. c.* Near San Luis Obispo, California; April; *Parry.*

MECONELLA CALIFORNICA, *Torr. & Frém. in Frém. 2d Rep. p.* Near San Francisco, California, on damp rocks; March; *Thurber.*

ROMNEYA COULTERI. *Harv. in Hook. Lond. Jour. Bot.* 4, *p.* 4, 74, *t.* 3. Borders of dry streams south of San Diego, California; *Parry.* A showy plant, with large white flowers, which, in some of the specimens, are 4½ inches in diameter. The mature capsules and seeds are not yet known.

DENDROMECON RIGIDUM, *Benth. l. c.; Hook. Ic. t.* 37; *Torr. & Gray, l. c.* (TAB. III.) In various parts of California, especially near the seacoast.

FUMARIACEÆ.

CORYDALIS AUREA, *Willd.* var. Siliquis breviusculis, etc., *Gray, Pl. Wright,* 2, *p.* 10. Dry ravines, Frontera; *Bigelow,* etc. Hueco mountains, Texas, March; *Thurber.*

DICENTRA? CHRYSANTHA, *Hook. & Arn. Bot. Beech. p.* 320, *t.* 73; *Torr. & Gray, Fl.* 1, *p.* 665. San Felipe, California; *Parry.* Between San Diego and the Rio Colorado; *Schott.* Monterey; *Mr. Andrews.* A tall branching plant, (3—4 feet high,) with showy golden yellow blossoms in panicles. It differs from Dicentra in the filaments of the two phalanges being united nearly to the summit, where alone they are distinct; in the dull verrucose horse-shoe-form seeds, which are thick on the margin, and destitute of a strophiole or crest; and, lastly, in a peculiar habit. The pollen is spherical, as in Dicentra. It may be considered as the type of a genus or subgenus, to which the name of Chrysocapnos would not be inappropriate.

CRUCIFERÆ.

CHEIRANTHUS ASPER, *Cham. & Schlecht. in Linnaea,* 1, *p.* 14, *excl. syn.* C. capitatus, *Dougl. in Hook. Fl. Bor. Amer.* 1, *p.* 38. Erysimum grandiflorum, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 96. Sandy hills near Monterey, California; May; *Parry.* The specimens are in flower and fruit. The siliques are an inch and three-quarters long, nearly two lines broad, and much compressed. Seeds narrowly winged, and sometimes partly in two rows. Cotyledons distinctly accumbent, although the radicle is, in some cases, slightly oblique. An original specimen of Nuttall's plant agrees exactly with ours, but it has only very young fruit. The ripe fruit and seeds have probably not been seen before.

ARABIS MACROCARPA. Turritis macrocarpa, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 75. Wet places, San Isabel, California; May; *Thurber.*

ARABIS PATULA. Turritis patula, *Graham; Gray, Pl. Fendl. p.* 7. Near the Mimbres, New Mexico; April; *Bigelow.* Sonora; *Parry.*

CARDAMINE ANGULATA, *Hook. Bot. Misc.* 1, *p.* 343, *t.* 69; *Torr. Bot. Whipp. Rep. p.* 65. C. paucisecta, *Benth. Pl. Hartw. p.* 297. California; *Parry.* The station not recorded, but probably Monterey.

DRYOPETELON RUNCINATUM, *Gray, Pl. Wright,* 2, *p.* 11, *t.* 11. Mountains of Chihuahua and Sonora; March—September; *Bigelow, Parry, Schott.* Hueco mountains, thirty miles east of El Paso, Texas; *Thurber.*

STREPTANTHUS LINEARIFOLIUS, *Gray, Pl. Fendl. p.* 7, *and Pl. Wright,* 1, *p.* 7; *and* 2, *p.* 10. Hills near the Copper Mines, June—August; *Bigelow.* Guadaloupe Cañon, Sonora; *Thurber.* Chihuahua; *Schott.*

STREPTANTHUS PLATYCARPUS, *Gray, Pl. Wright,* 2, *p.* 10. Mountain ravines, New Mexico; also, in western Texas and Chihuahua, along the Rio Grande, and west, to Sonora, March—April; *Bigelow, Parry.*

STREPTANTHUS CARINATUS, *Gray, l. c.* Ravines near El Paso; April. A showy species, and worthy of cultivation.

STREPTANTHUS PETIOLARIS, *Gray, Pl. Fendl. in not. p.* 7. Rocky hills, near the Limpia mountains, and Mountains of Muerte, etc.; July; *Bigelow.*

STREPTANTHUS LONGIFOLIUS, *Benth. Pl. Hartw. p.* 10; *Gray, Pl. Wright,* [illegible] rocky hills, western Texas, Near the Rio Grande, July; *Bigelow.*

STREPTANTHUS GLANDULOSUS. *Hook. Ic. t.* 40; *Torr. & Gray, Fl.* 1, *p.* 77. Napa county, California; *Thurber.*

STREPTANTHUS ARCUATUS, *Nutt. in Torr. & Gray, Fl. l. c.* Rocks on the seacoast, near San Francisco, California; April; *Thurber.*

NASTURTIUM PALUSTRE, *DC.; Gray, Pl. Wright,* 2, *p.* 10. Moist places, western New Mexico, Texas, and Chihuahua; April; *Bigelow, Thurber.* Variable in the length of the pods.

NASTURTIUM OBTUSUM, *Nutt. l. c.* Wet sandy places on the Rio Grande, from New Mexico to Eagle Pass; *Bigelow, Thurber.* Specimens from the lower Rio Grande have the pods nearly three-fourths of an inch long.

NASTURTIUM SESSILIFLORUM, *Nutt. l. c.* Brady's creek, Texas; *Thurber.*

NASTURTIUM CURVISILIQUA, *Nutt. l. c.* Napa county, California; *Thurber.*

BARBAREA VULGARIS, *Pr. Br.* var. pedicellis angulo recto patulis, *Benth. Pl. Hartw. p.* 297. On the Rio Mimbres, New Mexico; *Bigelow.* This resembles the California plant in the style.

THELYPODIUM WRIGHTII, *Gray, Pl. Wright,* 1, *p.* 3. Plains and low grassy places, Leon Springs, and along the Rio Grande, from forty miles below San Elceario to Eagle Pass; April—Sept.; *Bigelow, Schott.*

SISYMBRIUM CANESCENS, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 85. On the Rio Grande, from El Paso downward; also, in New Mexico; Febr.—May. Leaves often coarsely dissected.

SISYMBRIUM DIFFUSUM, *Gray, Pl. Wright,* 1, *p.* 8. Rocks near the Limpia, Texas; hills near the Copper Mines; and rocky places, Puerte de Paysano; July—Sept.; *Bigelow.*

ERYSIMUM ASPERUM. *DC.; Torr. & Gray, Fl.* 1. *p.* 95; *Torr. Bot. Whipple, Rep. p.* 66. Western Texas, Chihuahua, Sonora, and California. An extremely variable plant, which may be referred to several nominal species.

GREGGIA CAMPORUM, *Gray, Pl. Wright,* 1, *p.* 9, *t.* 1. Hills and prairies, on the Pecos and upper Rio Grande; also, in Chihuahua and Coahuila. The cauline leaves vary from entire to repandly toothed.

DRABA MICRANTHA, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 109. El Paso, and near the Copper Mines, March—April; *Bigelow, Thurber.* Guadaloupe Pass and Santa Cruz, Sonora; *Parry.*

VESICARIA DENSIFLORA, *Gray, Pl. Lindh.* 2, *p.* 145. Eagle Pass, and other places on the lower Rio Grande; March; *Schott.*

VESICARIA ARGYREA, *Gray, l. c.* Near Corallitus, Chihuahua; *Thurber.*

VESICARIA STENOPHYLLA, *Gray, l. c. & Pl. Wright,* 2, *p.* 13. Hueco mountains, Texas; *Thurber.* El Paso and Mule Springs; March—April; *Bigelow.* All the forms described by Gray occur in the collections.

VESICARIA RECURVATA, *Engelm. in Gray, l. c. & Pl. Wright, l. c.* Banks of the Leon, Texas, April; *Thurber.* Tucson, and on the Gila, Sonora; March; *Parry.*

VESICARIA PURPUREA, *Gray, Pl. Wright,* 2, *p.* 14. Hueco mountains, in rocky places, El Paso and Cook's Springs; March—April; *Bigelow, Thurber.* Guadaloupe Pass, &c., Sonora; March; *Parry.* The petals are only slightly purple, often almost white, and yellowish toward the claw.

VESICARIA LASIOCARPA, *Hook.; Gray, l. c. p.* 13, *in not.* Elm creek, valley near the Rio Grande; *Schott.* Ringgold barracks; *Capt. E. K. Smith.*

DITHYRÆA WISLIZENI, *Engelm. in Wisliz. Mem. N. Mex. p.* 11; *Torr. in Sitgr. Rep. p.* 280, *t.* 11. Prairies and sandy banks, El Paso to the Copper Mines; *Bigelow, Thurber.* Overflowed banks of the Gila; March; *Parry.*

DITHYRÆA CALIFORNICA, *Harv. in Hook. Lond. Jour. Bot.* 4, *p.* 77, *t.* 5; *Englm. l. c.* Dry river beds of the Colorado, California; *Schott.*

THLASPI FENDLERI, *Gray, Pl. Wright,* 2, *p.* 15. Organ mountains and Copper Mines, New Mexico: April—May; *Bigelow, Thurber.* Guadaloupe Pass and Tubac, Sonora; February—March; *Parry.* The radical and lower cauline leaves are often denticulate.

SYNTHLIPSIS GREGGII, *Gray, Pl. Fendl. p.* 116, *in not.* Hill-sides on the lower Rio Grande; common near Eagle Pass; March—September; *Schott.*[1]

HYMENOLOBUS PUBENS, *Gray, Pl. Wright,* 1, *p.* 9. Wet places near Rock creek; July; *Bigelow, Parry.*

LEPIDIUM ALYSSOIDES, *Gray, Pl. Fendl. p.* 10. Chihuahua and on the Pecos; *Thurber.* Low grounds near El Paso, and on the Organ mountains; May—October; *Bigelow.* Valley of the Gila; *Schott.* Santa Cruz valley, Sonora; *Thurber.* The late secondary leaves on specimens from the Organ mountains are deeply pinnatifid, and the segments toothed.

LEPIDIUM WRIGHTII, *Gray, Pl. Wright,* 2, *p.* 15. Ravines near El Paso and at the Copper Mines; March—April.

LEPIDIUM INTERMEDIUM, *Gray, l. c.* Ravines, Organ mountains; April; *Bigelow.*

LEPIDIUM LATIPES, *Hook. Ic.* 1, *t.* 41; *Torr. & Gray,* 1, *p.* 116. Mission of San Luis Rey, California; *Parry.*

LEPIDIUM NITIDUM, *Nutt. in Torr. & Gray, l. c.* With the last; *Parry.* San Isabel, California; February; *Thurber.*

LEPIDIUM CALIFORNICUM, *Nutt. l. c.*: var. foliis bipinnatifidis; siliculis majoribus margine hispidis. With the last, and in the interior of the country as far east as the mountains.

[1] The following note is kindly furnished by my friend, Dr. Gray:

"SYNTHLIPSIS GREGGII, (*Gray*:) canescens vel subcinerea; foliis abovatis oblongisve sub obatis vel sinuato-pinnatifidis plerisque petiolatis roseis albisve; siliculis ellipticis (nunc ovalibus) complanatis insigniter emarginatis, valvis dorso acutissimus apice marginato-subproductis. San Fernando, Coahuila; *Berlandier,* (No. 822, 2231 & 2242.) Berlandier's specimens, though green or glabrate, only the young parts being at all hoary, and the leaves larger and rounder, yet apparently belong to the same species as Dr. Gregg's plant, on which this genus was founded. The silicles vary from four to seven lines in length, are oblong-elliptical, or sometimes broadly oval, with a pretty strong emargination at the apex, strongly ob-compressed, and with an acute margin. The root is probably only biennial. The specific character here given is to distinguish this species from the following:

"SYNTHLIPSIS BERLANDIERI, (sp. nov.): puberula; foliis oblongis pinnatifido-laciniatis, caulinis sessilibus; petalis luteis; siliculis orbiculatis subretusis, valvis ad apicem haud productis. Matamoras; March and April; *Berlandier,* (No. 710, 778, 1517, 2127, 2198, 3017, 3102.) Root apparently only biennial. Stems diffuse or decumbent, about a foot in length, puberulent, as is the foliage, &c., with a minute and inconspicuous stellular down. Leaves an inch or less in length, 3-6 lines wide, laciniately pinnatifid and toothed. Racemes elongated in fruit, secund; the pedicels four to eight lines long, recurved in fruit; style about the length of the canescent ob-compressed ovary. Silicle three lines in length and breadth, slightly retuse at both ends, or at least at the apex, tipped with a slender style of a line in length; the valves strongly navicular, barely acute on the back, which is not produced into a margin at the apex. Seeds eight to ten in each cell, orbicular, flat, marginless, on filiform free funiculi. This plant in flower might be taken for one of the glabrate species of Vesicaria, but its silicles, strongly flattened contrary to the narrow partition, and the position of the seeds, exclude it from that genus, and from the tribe of Alyssineæ; and manifestly refer it to Synthlipsis, with which it accords in habit."—(*A. Gray.*)

Capsella bursa-pastoris, *Moench; DC. Syst.* 2, *p.* 283. San Luis Rey, California. Doubtless an introduced plant.

Hymenolobus divaricatus, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 117. California; *Parry*. The station not recorded; probably San Diego.

Thysanocarpus elegans, *Fisch. & Mey. Ind. Sem. Hort. Petrop.* (1835) *p.* 50; *Torr. & Gray, Fl.* 1, *p.* 118, (var. γ.) Dana's Ranch, California; *Parry*. Napa, March; *Thurber*. Tucson, Sonora; *Parry*. The last is the most eastern station known of a species of this genus.

Thysanocarpus crenatus, *Nutt. in Torr. & Gray, l. c.* Santa Ana, California, March; *Parry*. Napa; *Thurber*.

Thysanocarpus laciniatus, *Nutt. l. c.* With the last. A more slender form than Nuttall's plant.

Rhaphanus Raphanistrum, *Linn., DC. Prodr.* 1, *p.* 229. Naturalized abundantly on the lower Rio Grande and in the adjoining Mexican States.

CAPPARIDACEÆ.

Cleomella angustifolia, *Torr. in Gray, Pl. Wright*, 1, *p.* 11, *in not.* Gravelly places near Presidio del Norte, September; *Bigelow*.

Cleomella longipes, *Torr. l. c.* Saline plains, Sonora, June; *Thurber; Capt. E. K. Smith*.

Cleome Sonoræ, *Gray, Pl. Wright*, 2, *p.* 16. With the last; *Thurber*. Near the Mimbres, New Mexico; *Bigelow*.

Cristatella Tamesii, *Torr. & Gray, Fl.* 1, *p.* 123; *Gray, Gen. Ill.* 1, *p.* 177, *t.* 77. Between Victoria and San Antonio, Texas, October; *Schott*.

Polanisia uniglandulosa, *DC. Prodr.* 1, *p.* 242; *Gray, Pl. Wright*, *p.* 10. Sandy places on the Rio Grande; also on Cibolo creek and near the Copper Mines; April—July. Variable in the size of the flowers. Seeds smooth and rough, often in the same specimen.

Wislizenia refracta, *Engelm. in Wisliz. Mem. N. Mex. p.* 99; *Gray, l. c.* Alluvial soils near El Paso, May; *Parry, Bigelow*. Valley of the Gila; June; *Schott*. Sonora; *Thurber*.

Isomeris arborea, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 124.—(Tab. IV.) San Diego, California; May; *Parry, Thurber*. This interesting and handsome shrub deserves a place in our gardens.

RESEDACEÆ.

Oligomeris glaucescens, *Cambess.; Gray, Pl. Wright*, 2, *p.* 16. Common along the Rio Grande, also in Chihuahua and on the Gila.

VIOLACEÆ.

Viola adunca, *Smith in Rees Cyclop; Torr. Bot. Whippl. Rep. p.* 68. V. longipes, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 140. Near Monterey, California; April; *Parry*. Plains near the seacoast, San Francisco; *Thurber*. A form resembling Hartweg's No. 1660.

Viola ocellata, *Torr. & Gray, l. c.* New Almaden, California; April; *Thurber*.

Viola pedunculata, *Torr. & Gray, l. c.* San Luis Obispo; April; *Parry*; and San Diego to San Isabel, California; February; *Thurber*.

Viola lobata, *Benth. Pl. Hartw. p.* 298; *Torr. Bot. Whippl. Rep. p.* 68. Summit of the mountains east of San Diego. June; *Parry*. The leaves vary greatly. On the same specimen some of them are but slightly lobed, others are cut nearly to the base.

VIOLA CUCULLATA, *Ait.*; *Torr. & Gray, Fl.* 1, 139. Wet places near the Copper Mines and river Mimbres, New Mexico; April; *Bigelow, Thurber.*

IONIDIUM LINEARE, *Torr.*; *Gray, Gen. Ill.* 1, *p.* 189, *t.* 82. New Mexico and western Texas; west to Chihuahua and Sonora. It varies with the leaves broadly and narrowly linear, and from entire to acutely denticulate.

CISTACEÆ.

HELIANTHEMUM SCOPARIUM, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 152; *Benth. Pl. Hartw. p.* 299. Monterey and San Luis Rey, California; March—May; *Parry.*

HELIANTHEMUM CAROLINIANUM, *Michx. Fl.* 1, *p.* 307. Western Texas, August; *Wright.*

HYPERICACEÆ.

HYPERICUM FORMOSUM, *H. B. K. Nov. Gen. & Sp.* 5, *p.* 196, *t.* 160; *Gray, Pl. Wright*, 2, *p.* 17. Wet places near the Copper Mines, New Mexico; June—July; *Bigelow.* Santa Cruz, Sonora; *Thurber.*

HYPERICUM SCOULERI, *Hook. Fl. Bor. Am.* 1, *p.* 111. Mountains east of San Diego, California; June; *Parry.*

ELATINE AMERICANA, *Nutt.*; *Gray, Gen. Ill.* 2, *p.* 220, *t.* 95. Hills near the Copper Mines, New Mexico; *Bigelow.*

FRANKENIACEÆ.

FRANKENIA GRANDIFOLIA, *Cham. & Schlecht. in Linnaea* 1, *p.* 35; *Torr. & Gray, Fl.* 1, *p.* 168. Salt marshes and along the seashore near San Diego, California; June; *Parry.* Alluvions of the Rio Gila, Sonora; *Schott.* In Mr. Schott's specimens the leaves are much narrower than in those from the sea-coast.

CARYOPHYLLACEÆ.

SILENE ANTIRRHINA, *Linn.*; *Torr. & Gray, Fl.* 1, *p.* 191. Western Texas; New Mexico and westward to Sonora and California.

SILENE PULCHRA, *Torr. & Gray, Fl.* 1, *p.* 675. Eastern slope of the mountains east of San Diego; *Parry.*

SILENE QUINQUEVULNERA, *Linn.*; *Torr & Gray, l. c.* Near Monterey, California; May; *Parry.* Probably introduced.

SILENE GREGGII, *Gray, Pl. Wright*, 2, *p.* 17. Ravine at the Copper Mines, New Mexico; August; *Thurber.*

ARENARIA BENTHAMII, *Fenzl.*; *Torr. & Gray, Fl.* 1, *p.* 675. Blanco river, Texas; *Wright*; and San Antonio, in the same State; *Thurber.*

ARENARIA DIFFUSA, *Ell. Sk.* 1, *p.* 519; *Gray, Pl. Wright*, 2, *p.* 18. Painted Camp; *Bigelow.*

ALSINE TENELLA, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 179. A. tenuifolia, B. americana, *Fenzl. in Ann. Wien. Mus.* Monterey, California, May; *Parry.* Differs from A. tenuifolia in the less pointed sepals and in the seeds, which are 4 to 5 times larger, as well as more compressed, and marked with minute radiating rugæ.

ALSINE DOUGLASII, *Fenzl.*; *Torr. & Gray, Fl.* 1, *p.* 674. San Diego and Benicia, California; *Thurber.*

STELLARIA NITENS, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 185. S. moenchioides, *Fenzl. l. c.* Grassy, moist places near San Diego; *Parry.* The flowers in our specimens are all apetalous.

STELLARIA MEDIA, *J. E. Smith, Engl. Bot. t.* 537. Santa Barbara and other parts of California; introduced from Europe.

PARONYCHIA RAMOSISSIMA, *DC. Mem. Paronych. p.* 12, *t.* 4; *Torr. & Gray, Fl.* 1, *p.* 72. San Luis Rey, San Diego, &c.; *Parry, Thurber.* The large, imbricated, scarious stipules give this plant a silvery appearance. There are commonly 5 stamens, with as many intermediate oblong scales which are about the length of the filaments.

PARONYCHIA JAMESII, *Torr. & Gray, Fl.* 1, *p.* 170; *Gray, Pl. Wright,* 1, *p.* 13. Ravines, Rock creek: July; *Bigelow.* Ojo de Vaca, Chihuahua; *Thurber.*

PARONYCHIA LINDHEIMERI, *Engelm. in Gray, Pl. Lindh.* 2, *p.* 152. Middle and western Texas. Near the last species.

SPERGULARIA RUBRA, *Pers. Syn.* 1, *p.* 504; *Gray, Gen. Ill.* 2, *p.* 25, *t.* 107. Banks of the Rio Grande and seacoast of California.

DRYMARIA GLANDULOSA, *Bartl.; Gray, Pl. Wright,* 2, *p.* 18. Hills and rocky places, Copper Mines, New Mexico; August—October; *Bigelow.*

DRYMARIA FRANKENIOIDES, *H. B. K.; DC. Prodr.* 1, *p.* 395. Plains near the city of Chihuahua; October; *Thurber.* Arroyo near the Rio Grande, in Chihuahua; *Parry.*

DRYMARIA SPERGULARIOIDES, *Gray, Pl. Fendl. p.* 11. Ravines and low places near Lascuta; July; and near the Copper Mines; August; *Bigelow.*

DRYMARIA EFFUSA, *Gray, Pl. Wright,* 2, *p.* 19. Hills near Santa Cruz, Sonora; September; *Thurber.*

PORTULACACEÆ.

CALANDRINIA MENZIESII, *Hook. Fl. Bor. Am.* 1, *p.* 223, *t.* 70. Grassy places near San Diego, March; *Parry.*

CALANDRINIA MARITIMA, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 197. On the Coronados islands, on the coast of California; May; *Thurber.*

TRIANTHEMA MONOGYNA, *Linn.; DC. Prodr.* 3, *p.* 352. Plains of the Limpia, Texas; July; *Bigelow.* Magdalena and Sierra Verde; *Thurber, Schott.*

TALINUM AURANTIACUM, *Englm. in Pl. Lindh.* 2, *p.* 154 & β. ANGUSTISSIMUM, *in Gray, Pl. Wright,* 1, *p.* 14. Gravelly hills near Rock creek and Van Horn's Wells, Texas; *Bigelow.* Sandy places, Sonora; *Schott, Thurber.*

TALINUM PARVIFLORUM, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 197. Stony hills at the Copper Mines and El Paso, New Mexico; also in Western Texas; *Bigelow, Thurber.*

TALINUM REFLEXUM, *Cav. Gray, Pl. Wright,* 2, *p.* 20. Dry prairies and hill-sides, San Pedro river up to the Pecos, and along the Rio Grande from El Paso to Presidio del Norte; June—October.

TALINOPSIS FRUTESCENS, *Gray, Pl. Wright,* 1, *p.* 15, *t.* 3. Gravelly hills along the Rio Grande, from El Paso downward to the mouth of Great Cañon; also on the Cibolo; June—August; *Parry, Bigelow.*

SPRAGNEA UMBELLATA, *Torr. Pl. Frémont, in Smithson. Contrib.* 6, *p.* 4, *t.* 1. Damp rocks, Napa county, California; *Thurber.*

CLAYTONIA PERFOLIATA, *Donn: Torr. Gray, Fl.* 1, *p.* 199 ; *Torr .in Bot. Whippl. Rep. p.* 70. Monterey, California: *Parry.* Var. PARVIFLORA, *Torr. l. c.* Napa county, California; *Thurber.*

CLAYTONIA VIRGINICA, *Linn.; Torr. & Gray, Fl.* 1, *p.* 198. Ojo San Francisco; February; *Parry.*

SESUVIUM PORTULACASTRUM, *Linn.; DC. Prodr.* 3, *p.* 352. On the Rio Grande, from Doña Ana, New Mexico, to the Gulf; April—October. Common along the Gila; *Thurber.*

PORTULACA PILOSA, *Linn.: Engelm. in Gray, Pl. Lindh.* 2, *p.* 154; *Pl. Wright,* 1, *p.* 13. Howard's Springs and dry ravines near the Limpio mountains; July—August; also near the Copper Mines; *Bigelow.*

PORTULACA LANCEOLATA, *Engelm. l. c.* Rocky places, Mule Springs, and Puerte de Paysano; August—September; *Bigelow.*

MALVACEÆ.

MALVA BOREALIS, *Walm; Gray, Pl. Fendl. p.* 15. Monterey, California; *Parry.*

MALVASTRUM AMERICANUM. Malva Americana, *L. Sp. p.* 968, (non *Cavan.,*) *DC. Prodr.* 1, *p.* 430. On the lower Rio Grande; *Schott.* Rugel collected this species on Key West, Florida. (No. 89; *Shuttleworth.*)

MALVASTRUM MONROANUM, *Gray, Pl. Fendl. p.* 21. Malva monroana, *Dougl. in Bot. Reg. t.* 1306. M. fasciculata, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 225. Near San Diego, California; *Parry.*

MALVASTRUM THURBERI, *Gray, Pl. Thurb. p.* 307. Santa Cruz valley, Sonora; July; *Thurber.* I can find no sufficient characters for distinguishing this from M. Monroanum.

MALVASTRUM COCCINEUM, *Gray, Pl. Fendl. p.* 24. Gravelly and sandy plains on the Limpia, Rock creek, and Rio Grande; also in New Mexico, Chihuahua, and on the Gila.

MALVASTRUM PEDATIFIDUM, *Gray, Pl. Wright,* 1, *p.* 17. Frontera, Texas; March; *Bigelow, Parry.*

MALVASTRUM LEPTOPHYLLUM, *Gray, Pl. Wright,* 1, *p.* 17. Ojo de Vaca, &c. Chihuahua; *Thurber.* Our specimens are smoother than Wright's plant.

CALLIRHOË INVOLUCRATA, *Gray, Pl. Fendl. p.* 15, *Gen. Ill. t.* 117. Moist grounds, valley of the Pecos, and between Eagle Pass and Laredo, Texas. March—April; *Schott.*

SIDALCEA HUMILIS, *Gray, l. c. p.* 23. Sida malvæflora, *Hook. & Arn. Bot. Beechey, p.* 326, non *Lindl.* Monterey and near Santa Barbara, California; *Parry.* San Diego, *Thurber.*

SIDALCEA MALVÆFLORA, *Gray, Pl. Wright,* 1, *p.* 16. Sida malvæflora, *Moç. & Sessé. DC. Prodr.* 1, *p.* 194. Marshes of the Limpia and hills at the Copper Mines; July; *Bigelow.* Ojo de Gavilan and Rio Mimbres; *Thurber.* El Podrero, Sonora; June; *Schott.* It sometimes occurs with white flowers.

SIDA HEDERACEA, *Torr. in Gray, Pl. Fendl. p.* 23, *ad not.* New Mexico, on the upper Rio Grande, Sonora, and California: northward to Oregon.

SIDA FILICAULIS, *Torr. & Gray, Fl.* 1, *p.* —. Rocky and gravelly hills, Howard Springs, and between Van Horn's Wells and Muerte; *Bigelow.*

SIDA FILICAULIS, var. SETOSA, *Gray, Pl. Wright,* 2, *p.* 22. Rock creek and near the Great Cañon of the Rio Grande; *Bigelow, Parry.*

SIDA FILIPES, *Gray, Pl. Wright,* 2, *p.* 19. Crevices of rocks and ravines between the Pecos and San Pedro; *Schott.* El Paso; *Bigelow.*

SIDA LEPIDOTA, *Gray, l. c. p.* 18. Plains near Leon Springs; September; *Bigelow*. Cocospera, Sonora, and east of Sierra Madre; July—September; *Schott*.

SIDA PHYSOCALYX, *Gray, Pl. Lindh.* 2, *p.* 163. Hills between Van Horn's Wells and Muerte; May—July; *Bigelow*. Near Laredo; *Schott*. Fronteras, Sonora, and near the city of Parras, State of Coahuila; *Thurber*.

SIDA LONGIPES, *Gray, Pl. Wright*, 1, *p.* 31. San Pedro valley and on the Cibolo creek, also near Leon Springs; July—September; *Parry, Bigelow*.

SIDA ELLIOTTII, *Torr. & Gray, Fl.* 1, *p.* 232. Rocky places on the Limpio and at Van Horn's Wells, July; *Bigelow*. A dwarf form was found by *Thurber* at the Copper Mines.

ANODA HASTATA, *Cav.; Gray, Gen. Ill.* 2, *t.* 124. Valley of the Cocospera, Sonora; September—October; *Schott*. Mount Carmel, near the Rio Grande, Chihuahua, November; *Parry*.

ANODA PENTASCHISTA, *Gray, Pl. Wright*, 2, *p.* 22. Zuñi mountains, August—September; *Bigelow*. Presidio del Norte and further down the Rio Grande; *Parry*. Sonora; *Thurber*.

ANODA WRIGHTII, *Gray, Pl. Wright*, 2, *p.* 22. Dry ravines along the upper Rio Grande, also rocky places on the Limpia; *Bigelow*.

ABUTILON HOLOSERICEUM, *Scheele in Linnæa*, 21, *p.* 471. Rocky hills between Painted Camp and Wild Rose Pass, also on Turkey creek; July—November; *Bigelow*.

ABUTILON TEXENSE, *Torr. & Gray, Fl.* 1, *p.* 231; *Gray, Pl Wright*. Rocky hills on the Cibolo and mountains of Muerte, &c.; July—August. Valley of the Cocospera and Magdalena, Sonora; *Schott, Thurber*.

ABUTILON CRISPUM, *Don.; Gray, Gen. Ill.* 2, *t.* 126. Bogenhardia crispa, "*Reichenb. Repert. Herb.* 200, *No.* 7636." Rocky hills and ravines along the Rio Grande and its tributaries. Bachimba, Chihuahua, and Magdalena, Sonora; *Thurber*. Specimens from the latter station have remarkably villous stems.

ABUTILON THURBERI, *Gray, Pl. Thurb. p.* 307. Shady places, Magdalena, Sonora; October; *Thurber*.

ABUTILON PARVULUM, *Gray, Pl. Wright*, 1, *p.* 21. Flounce mountains and rocky hills between Van Horn's Wells and Muerte; June—July; *Bigelow*.

WISSADULA MUCRONULATA, *Gray, Pl. Berland. ined.* On the Rio Grande, below Reynosa, October; *Schott*. Leaves cordate, entire, green, and smoothish above, paler and somewhat velvety underneath. Peduncles paniculately several-flowered, the flowers very small, with obovate petals. Carpels obovate, smoothish, with 2 short horns. 4—5 seeded.

SPHÆRALCEA ANGUSTIFOLIA, *Spach; Gray, Pl. Wright*, 1, *p.* 21. S. stellata, *Torr. & Gray, Fl.* 1, *p.* 228. Moist, alluvial soils. Western Texas; June. On the Fronteras, Sonora; June—November; *Thurber*, A broad-leaved form was found by Schott at Eagle Pass.

SPHÆRALCEA HASTATULA, *Gray, l. c. p.* 17. On the Rio Pecos; *Thurber*.

SPHÆRALCEA INCANA, *Torr. in Gray, Pl. Fendl. p.* 23; *Pl. Wright*, 1, *p.* 21. El Paso; *Parry*; and Laguna los Putos, Chihuahua; *Thurber*. San Elceario, &c.; *Bigelow*. Var. DISSECTA, *Gray, l. c. p.* 21. Chihuahua; *Schott, Thurber*.

SPHÆRALCEA FENDLERI, *Gray, l. c.* Low grounds along the Gila; *Schott*. Santa Cruz, Sonora; *Thurber*.

PAVONIA WRIGHTII, *Gray, Gen. Ill.* 2, *p.* 76, *t.* 130; *Pl. Lindh.* 2, *p.* 161. Shady borders of the tributaries of the lower Rio Grande; *Schott, Bigelow*.

MALVAVISCUS DRUMMONDII, *Torr. & Gray, Fl.* 1, *p.* 230; *Gray, Gen. Ill.* 2. *t.* 131. Southwestern and central Texas; *Thurber, Schott.* The baccate fruit is red when ripe.

KOSTELETZKYA (ORTHOPETALUM) PANICULATA, *Benth. Pl. Hartw. p.* 285. Mountain pass near Cocospera river; September; *Schott.* Corolla, deep rose color. Bentham regards this plant as the type of a distinct section or, perhaps, genus, differing from Kosteletzkya in the erect convolute petals.

HIBISCUS COULTERI, *Harvey in Gray, Pl. Wright,* 1, *p.* 23. Western Texas, near the Rio Grande; June—October.

HIBISCUS DENUDATUS, *Benth.* Var. INVOLUCELLATUS, *Gray, l. c. p.* 23. Gravelly table-lands of the Rio Grande, from El Paso down to the Cibolo; May—September; *Parry, Bigelow.*

HIBISCUS CARDIOPHYLLUS, *Gray, l. c. p.* 22. Dry limestone hills near the mouth of the Pecos; September—October; *Schott, Bigelow.*

THURBERIA THESPESIOIDES, *Gray, Pl. Thurber, p.* 308. (TAB. VI.) Cañon near Cocospera and Ymuris, Sonora; October—November; *Schott.* Mr. Schott informs me that this plant is called *Algodoncello* by the Sonorians.

BYTTNERIACEÆ.

MELOCHIA PYRAMIDATA, *Linn; Gray, Gen. Ill.* 2. *p.* 134 *and Pl. Lindh. p.* 165. Western Texas; *Schott, Bigelow.*

MELOCHIA TOMENTOSA, *Linn; DC. Prodr.* 1, *p.* 490. On the lower Rio Grande; *Schott.*

WALTHERIA DETONSA, *Gray, Pl. Wright,* 2, *p.* 24. Magdalena, Sonora; *Thurber.*

HERMANNIA TEXANA, *Gray, Gen. Ill.* 2, *p.* 88. *t.* 135. Ravines of Devil's river and plains near Howard's Spring; also at the mouth of the Pecos; September—October; *Bigelow.*

AYENIA PUSILLA, *Linn; Gray, Pl. Wright.* 1, *p.* 24, 2, *p.* 24. Dry rocky ravines, Van Horn's Wells, June; *Parry;* Sonora; *Thurber.*

AYENIA MICROPHYLLA, *Gray, l. c.* Rocky hills of the Rio Grande, near and below El Paso; *Parry, Bigelow.*

TILIACEÆ.

CORCHORUS PILOLOBUS, *Link; Gray, Pl. Wright,* 2, *p.* 24. Gravelly beach of the Island of Lost Rocks, lower Rio Grande, September; *Schott.* Santa Rosa valley; *Parry.*

LINACEÆ.

LINUM MULTICAULE, *Hook. in Torr. & Gray, Fl.* 1, *p.* 698; *Engelm. in Gray, Pl. Wright,* 1. *p.* 27. Valley of the Limpio; July; *Bigelow.*

LINUM BERLANDIERI, *Hook. Bot. Mag. t.* 3,480; *Engelm. l. c.* Live Oak creek and rocky places on the Rio Grande; also in Chihuahua.

LINUM PERENNE, *Linn; Engelm. l. c.* Plains between the Limpia and the Rio Grande, and westward to the Gila.

LINUM RIGIDUM, *Pursh; Engelm. l. c.* Gravelly hills from El Paso to San Eleazario; April—June.

LINUM RUPESTRE, *Engelm. in Gray, Pl. Lindh.* 2, *p.* 232. Rocky places on the Limpia and Rio Grande.

OXALIDACEÆ.

Oxalis Berlandieri (n. sp.): caulescens, pilosa; foliis trifoliolatis, foliolis oblongis v. obovato-oblongis plerumque emarginatis terminali valde petiolulato; pedunculis axillaribus subterminalibusque 3—5-floris folium subæquantibus gracilis, petalis flavis. Sandy places in the prairies between Laredo and Ringgold Barracks, June; *Schott*. Rio Nueces, *Berlandier*, No. 1094 and 2524. Stems arising from a slender subterranean rhizoma, erect, 4—6 inches high, branching towards the base. Lateral leaflets 3—4 lines, terminal 5—6 lines long. Filaments unequal, 5 of them hairy, twice as long as the alternate smooth ones. Cells of the ovary about 4-ovuled. Capsule subglobose ovate, scarcely as long as the sepals, strongly 5-angled; the cells one-seeded. Seeds strongly tuberculose-ribbed. Allied to O. psoraleoides. The only species of this section hitherto found within the limits of our Flora.

Oxalis dichondræfolia, *Gray, Pl. Wright.* 1, *p.* 27. Sides of dry, calcareous hills near the lower Rio Grande; *Schott*. Plains of Los Muros; *Bigelow*.

Oxalis Drummondii, *Gray, Pl. Wright.* 2, *p.* 25. O. vespertilionis, *Torr. & Gray, Fl.* 1, *p.* 679. Plains between the Leona and lower Rio Grande; also in Sonora, near the San Pedro river.

Oxalis violacea, *Linn.: Torr. & Gray, Fl.* 1, *p.* 211. Between the Pecos and Devil's river and the Rio Grande; Copper Mines, New Mexico; *Bigelow*, *Parry*. Usually taller than the eastern plant, but with smaller and more numerous flowers.

Oxalis Wrightii, *Gray, Pl. Wright.* 1, *p.* 27, & 2, *p.* 25. Near Rock Creek, and Presidio del Norte, July—August; *Bigelow*. Santa Cruz valley, Sonora; *Thurber*.

Oxalis decaphylla, *H. B. K.*; *Gray, l. c.* 2, *p.* 25. Copper Mines, New Mexico, August; *Bigelow*.

Oxalis stricta, *Linn.: Torr. Fl. N. York*, 1, *p.* 123. Rocks along the Leona and sandy banks of the lower Rio Grande, March—November.

GERANIACEÆ.

Geranium Carolinianum. *Linn.; Torr. & Gray, Fl.* 1, *p.* 207. Central and western Texas; also in Chihuahua and various parts of California.

Geranium cæspitosum. *James: Gray, Pl. Fendl.* *p.* 25. Organ mountains; *Bigelow*. Hills at the Copper Mines, June—August; *Bigelow*, *Thurber*. "Flowers usually purple, but sometimes quite white." *Thurber*.

Erodium Texanum, *Gray, Gen. Ill.* 2, *t.* 151. Northern New Mexico, western Texas and borders of the Gila.

Erodium cicutarium, *Herit.: DC. Prodr.* 1, *p.* 646. Common in New Mexico and throughout Sonora and California; probably introduced by the Spaniards.

Erodium macrophyllum, *Hook. & Arn. Bot. Beechey*, *p.* 327. California, (station not recorded,) *Parry*. The leaves in our specimens are much smaller than they are described by Hooker & Arnott, being scarcely more than an inch long.

LIMNANTHACEÆ.

LIMNANTHES DOUGLASII, *R. Br.; Torr. & Gray, Fl.* 1, *p.* 209, Benicia, California, March; *Thurber.*

ZYGOPHYLLACEÆ.

LARREA MEXICANA, *Moric.; Torr. in Emory's Rep., p.* 138, *t.* 3; *Gray, Gen. Ill. t.* 147. Along the boundary line from the Rio Grande to California.

PORLIERA ANGUSTIFOLIA, *Gray, Pl. Wright.* 2, *p.* 28. Guiacum angustifolium, *Engelm.* Vicinity near Eagle Pass, *Bigelow,* Deadman's Hole; *Parry.*

FAGONIA CALIFORNICA, *Benth. Bot. Sulph., p.* 10.; *Torr. in Pacif. R. R. Ex., Expe. pl.* 10, *p.* 359, *t.* 1. Rocky and hill sides of the lower Colorado, California, February; *Schott.*

GUIACUM COULTERI, *Gray, Pl. Thurb. p.* 312. Hills between Rayon and Ures, Sonora; *Thurber.*

KALLSTRŒMIA GRANDIFLORA, *Torr. in Gray, Pl. Wright.* 1, *p.* 26. Borders of the Rio Grande in western Texas; Chihuahua and Sonora, July. Mr. Schott states that it is called *Mal* [illegible] by the Sonorians.

KALLSTRŒMIA MAXIMA, *Torr. & Gray, Fl.* 1, *p.* 213. Common along the Rio Grande and westward throughout the Mexican States and southern California.

RUTACEÆ.

KOEBERLINIA SPINOSA, *Zucc.; Gray, Pl. Wright.* 1, *p.* 30, & 2, *p.* 26. Rich soils in various places along the Rio Grande and in the Mexican States westward, May—August. [illegible] favorable situations this shrub sometimes attains the height of 8 or 10 feet." *Thurber.*

PEGANUM MEXICANUM. *Gray, l. c.* 1, *p.* 30, *adnot.* Low places near the Eagle mountains, June; *Bigelow.* El Gallo, Chihuahua, November; *Thurber.*

THAMNOSMA TEXANUM. Rutosma Texanum, *Gray, Gen. Ill.* 2, *p.* 114, *t.* 155. Hills between the Pecos and Devil's river and the Rio Grande; also along the latter river from El Paso downward, and in western New Mexico, Sonora, etc., flowering throughout the season.

THAMNOSMA MONTANUM, *Torr. & Frem. in Frem. 2d Rep., p.* 313. Sierra Tule, Sonora; *Schott.* San Felipe, California, May; *Thurber.*

ASTROPHYLLUM DUMOSUM, *Torr. in Bot. Pope's Report, p.* 161. Mountains about thirty-five miles below El Paso, in Chihuahua, July (in fruit); *Bigelow.* Borders of the Rio Mimbres, *Dr. Henry,* United States army. Western slope of the Sierra del Pajarito, Sonora, July, (just past flowering,) *Schott,* (not on the Rio Grande, as erroneously stated in the Botany of Captain Pope's Report.) Since the description quoted above was written, other specimens of this remarkable plant have been received, but none of them with perfect flowers. In one or two instances withered, imperfect flowers were found, and we can now give a nearly complete character of the genus, which rather belongs to the Diosmeæ than to the true Rutaceæ.

ASTROPHYLLUM.

Calyx 4—5-sepalus, deciduus; sepalis obtusis. Petala 4—5, obovata. Stamina 8—10. Ovarium sessile, disco hypogyno 8—10-lobo insidens, 4—5-lobum, 4—5-loculare; loculis

2-ovulatis. Styli tot quot carpella, coaliti, demum inferne distincti. Stigma capitatum, 4—5-lobatum. Capsulæ abortu sæpius 2, basi subcoalitae, sessiles, semibivalvia. Semina plerumque solitaria subglobosa. Frutex humilis, graveolens, ramosissimus; foliis oppositis petiolatis, palmatim 5—10-foliolatis; floribus albis in axillis summis solitariis vel subumbellatis.

A shrub 3 to 6 feet high, with numerous pubescent, crowded, opposite branches. Leaves opposite, (rarely sub-opposite), pubescent, exstipulate; petioles, 6—10 lines long; leaflets mostly longer than the petioles, marked (as are also the petioles and younger branches) with prominent conspicuous glands. In all the specimens from the Rio Grande there are 6 to 10 leaflets, which are narrowly linear (scarcely a line wide), and sub-coriaceous; in those from Sonora there are 5, which are twice as broad, and thinner. These glands, on the leaflets, are somewhat distant and marginal. Flowers perfect. Pedicels 8—10 lines long, mostly near the extremity of the branches, either solitary or 2 to 4, and somewhat umbellate. Sepals 4—5, short and semiovate, ciliate on the margin. Petals inserted at the base of the shorter stamens, 3—4 times as long as the calyx, obovate, narrowed at the base. Stamens mostly 8; filaments naked, the alternate ones longer, compressed; anthers ovate, fixed by the base, opening longitudinally. Disk produced into 8—10, nearly equal glandular lobes, which are without pores. Ovary hairy, 4—5-lobed, 4—5-celled; the cells produced above into a short obtuse beak, exterior to the style; each cell containing 2 collateral hemitropous ovules. Styles short, at first combined, but afterwards (and especially in the unfructified ovaries) distinct below; stigma of 4—5 capitate lobes. Fruit capsular; only two of the carpels usually ripening; these are broadly ovate, compressed, dotted with brown impressed glands, mucronate with the base of the style; the beak, which in the ovary was at the summit of the carpel, becoming, in the mature fruit, a dorsal tooth. At maturity the carpels open nearly the whole length of the dorsal suture, and down the back as far as the tooth. The endocarp also separates almost entirely from the epicarp. Seeds mostly solitary in each cell, globose-ovate, black and shining. Embryo nearly straight in the axis of fleshy albumen; cotyledons roundish-ovate, flat, with a very short radicle. A very distinct genus.

PITAVIA (GASTROSTYLA) DUMOSA, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 215. San Diego and San Pasqual, California, Febr.; Parry, *Thurber*. A shrub 2—3 feet high. Leaves pungent when chewed. Cymes 3-flowered, terminal, and on short lateral spurs. Calyx 4-parted; the segments ovate, acute, coriaceous. Petals white, equal, oblong, sparsely dotted. Stamens 8; filaments subulate; anthers somewhat reniform, innate, retrorse. Ovary solitary, seated on a fleshy sub-globose slightly lobed disk. Stigma capitate. Fruit 1—2-seeded, testa thick and coriaceous. Embryo curved, in rather thin fleshy albumen. This plant (as was remarked in the Flora of N. America) is hardly a congener of Pitavia. It may form a sub-genus, distinguished by its hermaphrodite flowers, solitary ovary, lateral style, and curved embryo.

ZANTHOXYLUM CAROLINIANUM, *Lam.*; *Torr. & Gray, Fl.* 1, *p.* 24. Var. foliis brevioribus ovatis, &c.; *Gray, Pl. Wright.* 1, *p.* 30. Head waters of the Nueces; also ravines on Devil's river and near Eagle Pass, Texas, March (in flower)—September (in fruit); *Bigelow*.

ZANTHOXYLUM PTEROTA. *H. B. Kth. Nov. Gen. & Sp.* 6, *p.* 3. Rocky places and hills near Santa Rosa, Cohahuila. February; *Bigelow*. Fort McIntosh, on the Rio Grande, May (fruit); *Schott*.

PTELEA TRIFOLIATA, *Linn.*; *Torr. & Gray, Fl.* 1, *p.* 225, *and B. p.* 680. Rocky places, Fron-

tera, Texas, and on the Mimbres, New Mexico; *Bigelow*. It is usually a shrub of from 3 to 6 feet high, but it sometimes occurs twenty feet.

PTELEA ANGUSTIFOLIA, *Benth. Pl. Hartw. p.* 9; *Gray. Pl. Fendl. p.* 28. Limestone hills around Ringgold Barracks; *Schott*. Mountain ravines, El Paso; *Thurber*.

COCHLOSPERMEÆ.

AMOREUXIA SCHEIDIANA, *Planch. in Hook. Lond. Jour. Bot.* 6, *p.* 140, *t.* 1; *Gray, Pl. Wright.* 2, *p.* 26, *t.* 12, *A*. Santa Cruz valley, Sonora; *Thurber*.

AMOREUXIA WRIGHTII, *Gray, l. c.* A. Scheidiana, *Pl. Wright.* 1. *p.* 29, *t.* 3. *B. excl. syn.* In rich soil, Eagle Pass, June; *Schott*. Hills and plains near the mouth of the Pecos, October (fruit); *Bigelow*.

ANACARDIACEÆ.

RHUS VIRENS, *Lindh. in Gray, Pl. Lindh.* 2, *p.* 159; *Pl. Wright.* 1, *p.* 31. Limestone rocks on Devil's river, and at the mouth of the Pecos; *Bigelow*.

RHUS MICROPHYLLA, *Engelm. in Gray, Pl. Wright.* 1, *p.* 31. Ravines along the Rio Grande, from El Paso down to Eagle Pass; also in Chihuahua and Sonora.

RHUS TRILOBATA, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 219; *Gray, Pl. Wright.* 1, *p.* 31. Northern New Mexico and the Valley of the Rio Grande; also in Sonora and California. A form with the leaves velvety-pubescent occurs at the Copper Mines and on the Organ mountains, New Mexico.

RHUS COPALLINA, var. LANCEOLATA, *Gray, Pl. Lindh.* 2, *p.* 158. Hills and rocky places between the Limpia and the Rio Grande, July; *Bigelow*.

RHUS TOXICODENDRON, *Linn.; Torr. & Gray, l. c.* A variety with narrow leaves was found on the Sierra del Pajarito, Sonora, by *Schott;* and at the cañon of Guadaloupe, by Capt. E. K. Smith.

RHUS DIVERSILOBA, *Torr. & Gray, l. c.* R. lobata, *Hook. Fl. Bor.-Amer.* 1, *p.* 127, *t.* 46; *Lindl. Bot. Reg.* (*n. ser.*) 31, *t.* 38. In various parts of California; frequent.

PISTACIA MEXICANA, *H. B. K. Nov. Gen. & Sp.* 7, *p.* 22, *t.* 608. Rocky ravines near the mouth of the Pecos, western Texas, October (fruit); *Bigelow*. A small tree.

LITHRÆA LAURINA, *Walp. Repert.* 1, *p.* 550; *Torr. Pl. Whippl. l. c. p.* 73. Rhus (Malosma) laurina; *Nutt. in Torr. & Gray, Fl.* 1, *p.* 219. (TAB. VII.) San Diego, California; *Parry*.

STYPHONIA INTEGRIFOLIA, *Nutt. in Torr. & Gray, Fl. l. c. & Sylv.* 3, *p.* 4, *t.* 82; *Torr. in Pacif. R. Road Expl.* 7, *Bot. p.* 8, *t.* 2. Santa Barbara and San Diego, California; *Parry, Thurber*. Leaves very variable in size and outline, especially upon the young shoots. S. serrata (*Nutt.*) is not distinct.

SCHINUS MOLLE, *Linn. Sp. p.* 1467. Lower California, near the boundary line; *Parry;* and at the Mission of San Luis Rey; *Thurber*. It is common also in all the Mexican States, but is probably not indigenous. Mr. Thurber informs me that in California it is called Pepper Tree by the residents, the berries having precisely the taste of the common black pepper.

SIMARUBACEÆ.

CASTELA NICHOLSONI, *Hook. Bot. Misc.* 1, *p.* 271, *t.* 56; *Gray, Gen. Ill.* 2, *t.* 158. Dry plains and hills, western Texas, along the Rio Grande, February—March; *Parry, Thurber*. Mier Neuvo Leon; *Thurber*.

Holacantha Emoryi, *Gray, Pl. Thurber. p.* 310. (Tab. VIII.) Near Sonoita, Sonora, August (with fine fruit); *Schott.* The description of this remarkable plant, by Dr. Gray, is so complete and so accurate that I have nothing to add but a good figure by Sprague.

VITACEÆ.

Vitis bipinnata, *Torr. & Gray, Fl.* 1, *p.* 243. Banks of Escondida creek, near Eagle Pass, and at Rock creek, western Texas, July—September (in fruit); *Bigelow.*

Vitis incisa, *Nutt. in Torr. & Gray, l. c.* On the lower Rio Grande, and in Cocospera valley, Santa Magdalena, Sonora; *Schott.* "It is mixed with cochineal and used by the Mexicans to dye red."

Vitis æstivalis, *Fl.* 2, *p.* 230; *Torr. & Gray, l. c.* Central Texas; *Wright.* On Mount Ben Moore, New Mexico; *Bigelow.*

Vitis Californica, *Benth. Bot. Sulph. p.* 10. San Diego and other parts of California, July; *Parry.* Sonora; *Thurber, Capt. E. K. Smith.*

Ampelopsis quinquefolia, *Michx. Fl.* 1, *p.* 159. On the Mimbres and at the Copper Mines, New Mexico, June—July; *Bigelow.*

RHAMNACEÆ.

Adolphia infesta, *Meisn. Gen. p.* 70; *Gray, Pl. Wright.* 1, *p.* 34. Monterey and near San Diego, California, March—May; *Parry.* Hills near Rock creek, Texas; July (flowers and fruit); *Bigelow, Parry.*

Ceanothus Greggii, *Gray, Pl. Wright.* 2, *p.* 28. Guadaloupe Pass; April; Sonora; *Parry;* and San Luis mountains in the same State; *Capt. E. K. Smith.*

Ceanothus ovalis, *Torr. & Gray, Fl.* 1, *p.* 265. Dry ravines, valley of the Pecos, Texas, and San Felipe; *Bigelow.*

Ceanothus divaricatus, *Nutt. in Torr. & Gray, l. c.*, var. eglandulosus, *Torr. in Bot. Whipp. Rep. l. c. p.* 75. Mountains east of San Diego, California, June (fruit); *Parry.*

Ceanothus sorediacus, *Hook. & Arn. Bot. Beechey, p.* 329; *Torr. & Gray, l. c.* On the conglomerate and sandstone hills above San Diego; *Parry.* C. Lobbianus, *Hook. Bot. Mag. t.* 4811, seems to be hardly distinct from our plant.

Ceanothus thyrsiflorus, *Eschsch. in Mem. Acad. St. Petersb.* 1826; *Torr. & Gray, Fl. l. c.* Common in the neighborhood of Monterey and San Diego, as well as in many other parts of California, where it is known by the name of California lilac.

Ceanothus spinosus, *Nutt. l. c.* Near Santa Barbara, California; March; *Parry.* Flowers white, with a tinge of blue. Leaves sometimes distinctly toothed at the apex. The branches are not thorny in our specimens.

Ceanothus cuneatus, *Nutt. l. c.* C. macrocarpus, *Nutt. l. c.* Near San Luis Obispo and Santa Barbara, California, April; *Parry.* There can be no doubt of the propriety of uniting the two species here quoted. We have specimens collected from numerous localities, which show a transition from the one to the other.

Ceanothus rigidus, *Nutt. l. c.; Benth. Pl. Hartw. p.* 302; *Lindl. & Paxt. Fl. Gard.* 1, *p.* 74, *t.* 51. (Table IX.) On dry hills, Monterey, California, April; *Parry.* An evergreen shrub about 5 feet high, with rigid branches. The leaves vary greatly in form, being sometimes broadly obovate and often deeply emarginate.

Ceanothus dentatus, *Torr. & Gray, Fl. l. c.; Lindl. & Paxt. Fl. Gard.* 1, *p.* 17, *t.* 4. (Table X.) Sandy soils around Monterey, California; *Parry.* A low bush. Our specimens correspond with Douglas's plant, except that in the latter the flowers are said to be white, whereas they are blue in the former. They had, no doubt, faded in the specimens from which the original description was drawn.

Ceanothus crassifolius, (n. sp.): fruticosus, erectus; ramulis teretibus albo-tomentosis; foliis ovatis obtusiusculis integerrimis crassis penninerviis subtus dense albo-tomentosis glabris minute papillaris opacis; thyrsis subsessilibus brevibus subumbelliformibus densifloris. (Table XI.) Mountains south of Los Angelos, February; *Parry.* A shrub 4 to 5 feet high, much branched. Leaves 1—1¼ inch long, remarkably thick and coriaceous, revolute on the margin when dry, pale dull green above and appearing rough like shagreen under a lens; petiole 2—3 lines long, thick. Clusters of flowers terminal, and in the axils of the upper leaves. Calyx and corolla white. Ovary marked with 3 minute protuberances. Fruit not known.

Frangula Caroliniana, *Gray, Gen. Ill.* 2, *p.* 178, *t.* 167. Rhamnus Carolinianus, *Walt. Fl. Car. p.* 101. Banks of streams, Los Muros, &c., Western Texas; *Bigelow.*

Frangula Californica, *Gray, l. c., & Pl. Wright.* 2, *p.* 28. Mountain ravines near Camp Bache, Western Texas; *Bigelow.* Sonora; *Schott, Capt. E. K. Smith.* Monterey and San Diego, California; *Parry.* Variable in the form and pubescence of the leaves. We quite agree with Dr. Gray, that this species includes Rhamnus Californicus, *Esch.*, R. oleifolius, *Hook.*, R. laurifolius, *Nutt.* R. leucodermis, *Nutt.*, and R. tomentellus, *Benth.*

Rhamnus croceus, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 261. Around Monterey and San Diego, also on the mountains of southern California; *Parry.* The leaves vary from ½ to 1½ inch in length, and from obovate-oblong to broadly ovate. The under surface is always yellowish. The fruit in Dr. Parry's specimens is all 2-seeded.

Zizyphus Parryi, (n. sp.): glabra; ramis spinosis; foliis obovatis integerrimis sub-coriaceis penninerviis; pedunculis unifloris, fructiferis recurvis; drupa sub-exsucca ovata apiculata 3-loculare; nuce crassissima ossea 3-loculari 3-sperma. Gravelly ravines near San Felipe, California, June (in fruit); *Parry.* It was afterwards found at the same place by Mr. Thurber. A shrub 4—6 feet high, much branched; the branches smooth, flexuous, and armed with numerous slender leafy spines. Leaves 8—12 lines long, obtuse or sometimes retuse, abruptly tapering at the base into a short petiole; stipules minute, subulate, deciduous. Only a solitary flower was found. This was minute and pentamerous, the very small concave petals partly embracing the stamens. Peduncles solitary, or sometimes 2—3 together, arising from short branches or spurs; those of the fruit about half an inch long and recurved. Drupes 6—8 lines long, with a short abrupt point, lemon yellow, the pulp very thin. Nutshell extremely thick and hard. Seeds narrowly oblong. Albumen very thin. Embryo linear, oblong, green. This must be a very rare plant, as it has been found but twice, and in both cases near the same spot. In its nearly dry 3-celled fruit and extremely thick shell it resembles Z. xylopyra of India.

Zizyphus obtusifolia, *Gray, Gen. Ill.* 2, *p.* 170, *t.* 163; *& Pl. Lindh.* 2, *p.* 168. Dry hills and banks from El Paso to Eagle Pass, on the Rio Grande; March—June; abundant.

Zizyphus lycioides, *Gray, l. c.* Near Elceario, on the Rio Grande, June (in fruit); *Parry.* Valley of the Gila; *Thurber.* Dr. Gregg found it between Matamoras and Mapini. The fruit is black and somewhat astringent, but edible.

CONDALIA SPATHULATA, *Gray, Pl. Wright.* 1, *p.* 32. Ravines on the Rio Concha; *Bigelow.* Eagle Pass, Texas, and Sonora; *Schott.*

CONDALIA OBOVATA, *Hook. Ic. t.* 287; *Torr. & Gray, Fl.* 1, *p.* 685; *Gray, Gen. Ill.* 2, *t.* 164. Sandy plains, Eagle Pass, and upward to El Paso, April; *Bigelow.* Tucson, Sonora; *Parry.*

COLUBRINIA TEXENSIS, *Gray, Pl. Lindh.* 2, *p.* 169; *Pl. Wright.* 1, *p.* 33. Plains between the Pecos and the Rio Grande. The leaves on the young shoots are sometimes 4 inches long and 3 inches wide, but on the older branches they are much shorter.

KARWINSKIA HUMBOLDTIANA, *Zucc.*; *Gray, Pl. Wright.* 1, *p.* 72. Between the Rio Grande and the Pecos and Devil's river; May—July.

CELASTRACEÆ.

MORTONIA SCABRELLA, *Gray, Pl. Wright.* 2, *p.* 28. Mountains of El Paso and of Chihuahua, opposite San Elceario, May—June; *Parry, Bigelow.*

MORTONIA SEMPERVIRENS, *Gray, Pl. Wright.* 1, *p.* 35, *t.* 4. On the Pecos, western Texas.

MORTONIA GREGGII, *Gray, l. c.* (*adnot.*) Calcareous hills, Ringgold Barracks, May; *Schott.*

GLOSSOPETALON SPINESCENS, *Gray, Pl. Wright.* 2, *p.* 29, *t.* 12. *B.* Mountains and rocky places, El Paso, March; *Bigelow.*

MAYTENUS PHYLLANTHOIDES, *Benth. Bot. Sulph. p.* 54. Lower Rio Grande (in fruit); *Schott.* A native also of the bay of Magdalena, California, and of Key West, Florida. Cotyledons thick, and albumen very thin in this species.

PACHYSTIMA MYRSINITES, *Raf.*; *Gray, Pl. Fendl. p.* 29. Sides of Ben More, New Mexico, June; *Bigelow.*

SCHÆFFERIA CUNEIFOLIA, *Gray, Pl. Wright.* 1, *p.* 35. Western Texas, along the lower Rio Grande, March (male flowers); *Schott.*

ACERACEÆ.

ACER MACROPHYLLUM, *Pursh, Fl.* 1, *p.* 267; *Hook. Fl. Bor.-Am.* 1, *p.* 112, *t.* 38. Mountain ravines, Santa Barbara, California; *Parry.*

NEGUNDO ACEROIDES, *Moench*; *Torr. & Gray, Fl.* 1, *p.* 260. N. Californicum, *Torr. & Gray, l. c. Nutt. Sylv.* 2, *p.* 90, *t.* 72. In various parts of California; *Parry.*

SAPINDACEÆ.

SAPINDUS MARGINATUS, *Willd*; *Gray, Gen. Ill.* 2, *t.* 150. Along the Rio Grande and its tributaries; also near the Copper Mines, New Mexico, and in Sonora.

CARDIOSPERMUM HALICACABUM, *Linn.* Western Texas, and on the lower Rio Grande; *Schott.*

SERJANIA INCISA, (n. sp.) foliis impari-bipinnatis; pinnis bijugis trifoliatis; foliolis ovato-rhomboideis serrato-incisis utrinque pubescentibus, petiolis subalatis; carpellorum alis semi-oblongis. Mountains of Santa Rosa, Cohahuila; *Bigelow.* A vine 3—8 feet long. Leaflets 1—1½ inch long, acute at each end, with 2—3 coarse teeth on each side; the petiole more or less distinctly winged. Peduncles about two-thirds the length of the leaves. Panicle an inch or more long, racemiform, usually with 2 or 3 tendrils at the base. Sepals oblong. Petals strongly appendiculate on the inside. Fruit 1½ inch long, at first pubescent, but nearly smooth when old; seed-bearing portion reticulately veined; wings 3—5 lines wide, rather obtuse at

the base. We think this can hardly be S. racemosa, nor can we refer it to any described species of Serjania. The leaves in all our specimens are pinnate, and the pinnæ trifoliate.

Urvillea Mexicana, *Gray, l. c. (adnot.)* Rich soil, among rocks. Monterey, Neuvo Leon, *Thurber*. It was found some years before, in the same place, by Dr. Gregg, Dr. Edwards, and Major Eaton. Taumilapas; *Berlandier*, No. 2269.

Dodonæa Scheidiana, *Schlecht. in Linnæa*, 18, *p.* 49. In various parts of Sonora; *Thurber, Schott.*

Æsculus Californica, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 251, *& Sylva*, 2, *p.* 69, *t.* 74. *Newberry, Bot. Williamson in Pacif. R. Road Expl.* 6, *p.* 21, *fig.* 1. Near Monterey and San Luis Obispo, California, May; *Parry.*

Ungnadia speciosa, *Endl. Atakt. t.* 36; *Gray, Gen. Ill.* 2, *t.* 178 *&* 179. Dry ravines, Organ mountains of New Mexico, March—April; *Bigelow.* Hueco mountains, Texas; *Thurber.*

MALPIGHIACEÆ.

Galphimia linifolia, *Gray, Gen. Ill.* 2, *p.* 196, *t.* 173. Limestone hills and plains on the Rio Grande and its tributaries, western Texas.

Malpighia glabra, *Linn.; DC. Prodr.* 1, *p.* 578. On the lower Rio Grande, September—October (flowers and fruit); *Schott.* Dr. Edwards found it near Monterey, Neuvo Leon. It is a shrub 1—4 feet high, growing in densely bushy places.

Janusia gracilis, *Gray, Pl. Wright.* 1, *p.* 38; *&* 2, *p.* 30; *Torr. Bot. Parkes, in Pacific R. Road Expl.* 7, *p.* 9, *t.* 1. From the Limpio mountains to El Paso, and west to Chihuahua and Sonora.

Aspicarpa longipes, *Gray, Pl. Wright.* 1, *p.* 38 *&* 2, *p.* 30. Rocky hills near the Limpia river, July—September; *Bigelow.* Sierra del Pajarito, Santa Cruz, Sonora; *Thurber, Schott.*

Aspicarpa hyssopifolia, *Gray, Pl. Lindh.* 2, *p.* 167; *& Pl. Wright.* 1, *p.* 36. Limestone hills along the lower Rio Grande, October; *Schott.*

Hiræa septentrionalis, *Ad. Juss. Monog. Malpigh. p.* 309. Var. foliis minoribussæ pissime oblongo-lanceolatis, *Gray, Pl. Thurb. p.* 303 *(adnot.)* Between Reyon and Ures, Sonora; *Thurber.* Dr. Edwards collected it near Monterey, Neuvo Leon. It is a shrub 6—8 feet high.

POLYGALACEÆ.

Polygala puberula, *Gray, Pl. Wright.* 2, *p.* 30. Hills between Van Horn's Wells and Muerte; and on the mountains of Leona; June—August; also at the Copper Mines, and on the Rio Mimbres.

Polygala Lindheimeri, *Gray, pl. Lindh.* 2, *p.* 150; *& Pl. Wright.* 1, *p.* 39. Hills and plains, western Texas; New Mexico and Sonora; June—September.

Polygala ovatifolia, *Gray, Pl. Wright.* 1, *p.* 39. Limestone rocks on the Rio Grande from Eagle Pass up to the San Pedro and Pecos; *Schott, Bigelow.*

Polygala alba, *Nutt. Gen.* 2, *p.* 87; *Gray, Pl. Wright. l. c.* Gravelly hills on the Rio Grande from New Mexico to the lower river. Valley of the Santa Cruz river, Sonora; *Capt. E. K. Smith.*

Polygala scoparia, *H. B. K. Nov. Gen.* 5, *p.* 399; var. multicaulis, *Gray, l. c.* Hills and ravines at El Paso; also at Eagle Springs, Texas; *Bigelow, Parry.*

Polygala hemipterocarpa, *Gray, Pl. Wright.* 2, *p.* 31. Rocky hills near Camp Bache, Texas, July; *Bigelow.* Sierra del Pajarito; *Schott.*

Polygala macradenia, *Gray, l. c.* 1, *p.* 39. Hills on the Rio Grande, from El Paso to Eagle Pass; June.

Polygala Nutkana, *Moc. & Sessé; DC. Prodr.* 1, *p.* 331. P. cucullata, *Benth. Pl. Hartw. p.* 229. P. Californica, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 671. (Tab. XII.) Near Monterey, May; *Parry.* We have seen specimens of this plant with radical flowers, so that no doubt Nuttall's P. Californica is the same as P. Nutkana.

Monnina Wrightii, *Gray, l. c.* 2, *p.* 31. Copper Mines, New Mexico, Aug.; *Bigelow.*

KRAMERIACEÆ.

Krameria lanceolata, *Torr. in Ann. Lyc. N. York*, 2, *p.* 168; *Gray, Gen. Ill.* 2, *t.* 185. Hill-sides along the Rio Grande, from El Paso to Laredo, April—July. Cañon of Guadaloupe, Sonora; *Capt. E. K. Smith.*

Krameria parvifolia, *Benth. Bot. Sulph. p.* 6, *t.* 1; *Gray, Pl. Wright.* 1, *p.* 42. Ravines and hills, western Texas, particularly along the upper Rio Grande and at Guadaloupe cañon, Sonora; *Capt. E. K. Smith;* also on the border of the California desert, near San Felipe, June; *Parry.* Var. ramosissima, *Gray, l. c.* Devil's river, Leon Springs, and Presidio del Norte.

Krameria canescens, *Gray, Pl. Wright. l. c.* (Tab. XIII.) Hills on the Rio Grande, from El Paso to the mouth of the Cibolo, June—July; *Bigelow.*

LEGUMINOSÆ.

Vicia pulchella, *H. B. K.*; Var. foliolis majoribus, etc., *Gray, Pl. Wright.* 2, *p.* 32. Hills at the Copper Mines, New Mexico, August; *Bigelow.*

Vicia exigua, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 272. Hill-sides, southern New Mexico, Chihuahua, and southern California, April—June.

Lathyrus linearis, *Nutt. l. c.* On the Rio Mimbres and at the Copper Mines, New Mexico, June, (in flower and fruit;) *Bigelow.*

Lathyrus vestitus, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 276. Napa county, California, March; *Thurber.*

Lathyrus palustris, *Linn.* var.? foliis elongatis angustis, etc.; *Gray, Pl. Wright.* 2, *p.* 32. Western Texas, and at the Copper Mines; also in Cohahuila and Sonora.

Lathyrus polymorphus, *Nutt. Gen.* 2, *p.* 97. In wet places, Sonora; *Thurber.*

Lathyrus venosus, *Muhl. in Willd. Sp.* 3, *p.* 1092? In shady places near San Diego, California, May; *Thurber.* A form with emarginate leaflets.

Lathyrus maritimus, *Bigel. Fl. Bost. ed.* 2, *p.* 268; *Torr. & Gray, Fl.* 1, *p.* 273. Near San Diego, March; *Parry.* Peduncles, petioles, and calyx pubescent. Leaflets 8—12, mostly alternate, varying from ovate to elliptical-oblong, glabrous, scarcely half as large as in the eastern plant. Stipules broadly cordate-hastate, nearly as long as the leaflets. Peduncles 6—10-flowered.

Phaseolus retusus, *Benth. Pl. Hartw. p.* 11; *Gray, Pl. Lindh.* 2, *p.* 170. Valley of the Limpio, and near the Copper Mines, July—August; *Parry, Bigelow.*

Phaseolus Wrightii, *Gray, Pl. Wright.* 1, *p.* 43. Mountains and rocky places along the middle Rio Grande, and at the Copper Mines, July—August. Dr. Bigelow found at Eagle Pass what seems to be a variety of this species, in which the leaflets of the lower leaves are entire.

PHASEOLUS ANGUSTISSIMUS, *Gray, Pl. Wright.* 2, *p.* 33. Dry ravines on the Cibolo, a tributary of the Rio Grande, Cohahuila, July; *Bigelow.*

PHASEOLUS, MACROPOIDES, *Gray, l. c.* Hills at the Copper Mines, August; *Bigelow.*

PHASEOLUS ATROPURPUREUS (n. sp.:) caulibus volubilibus retrorsim pubescentibus; stipulis minutis subulatis; foliolis lanceolatis basi dilatatis utrinque pubescentibus lateralibus ad basim unilobatis, terminati trilobo; pedunculis folio multoties longioribus paucifloris; calycibus subsessilibus, laciniis inferioribus lanceolato-subulatis, superioribus triangulari-lanceolatis, alis corollæ late ovatis (atropurpureis) vexillo duplo longioribus; leguminibus deflexis lineari-falcatis 7—9-spermis. Rocks on the Rio Cibolo of the Rio Grande, and ravines, Bufitillo; *Bigelow.* Presidio del Norte, July—August; *Parry.* Leaflets 1½—2½ inches long, tapering to a long narrow point; the lateral ones with large acute lobe on the outer side at the base; the terminal leaf more or less dilated at the base, and usually 3-lobed, but sometimes (especially in the lower leaves) only obscurely lobed. Peduncle 8—12 inches long, and still more elongated in fruit. Flowers 6—10, at first approximated toward the extremity of the peduncle, but afterwards distant. Pods about 3 inches long and 2 lines wide. Seeds oblong, compressed, about 2½ lines long, and 1½ wide; smooth, greyish, speckled with dark purple. This seems to be quite distinct from any Phaseolus hitherto described. Mr. Schott found on the sea beach at Brazos Santiago, Texas, a plant allied to this, but much more downy, and the leaflets half as large, ovate, obtuse, with very short lobes. The specimens are not sufficiently complete for a more minute comparison.

VIGNA VILLOSA, *Savi.? DC. Prodr. l.* 2, *p.* 40. Thickets on the Rio Grande, between Ringgold Barracks and Laredo; *Schott.* If, as is probable, this and V. glabra are not specifically distinct, it ought to be called V. luteola, the genus Vigna having been founded on Dolichos luteolus, *Jacq.*

ERYTHRINA CORALLOIDES, *Moc. & Sesse in DC. Prodr.* 2, *p.* 413? *Gray, Pl. Thurb. p.* 301. Bachuachi and Gaudaloupe cañon, June (in flower) and August (in fruit); *Thurber.* Summit of mountains north of Imores; *Capt. E. K. Smith;* and Sierra del Pajarito, in the same State; *Schott.* I have followed Dr. Gray in naming this plant, but it does not well accord with the description of De Candolle. The leaves are broader than long, and the petioles in our specimens are more or less prickly. Indeed, it scarcely differs from E. herbacea, of the southern States, for that species becomes shrubby in Florida, and the stem, as well as the petioles, prickly.

RHYNCHOSIA TEXANA, *Torr. & Gray, Fl.* 1, *p.* 687. Western Texas; also near the Copper Mines and Sonora, May—June.

RHYNCHOSIA TEXANA, var. ANGUSTIFOLIA, *Gray, Pl. Wright.* 1, *p.* 44. Mountain ravines, between Van Horn's Wells and Muerte, July; *Parry, Bigelow.*

RHYNCHOSIA MENISPERMOIDEA, *DC. Prodr.* 2, *p.* 384. Sandy places, low land, Texas, June; *Thurber, Bigelow.*

CENTROSEMA VIRGINIANA, *Benth.; Torr. & Gray, Fl.* 1, *p.* 290. Var. foliolis minoribus angustioribusque. Brazos Santiago, May; *Schott.*

GALACTIA MARGINALIS, *Benth.; Torr. & Gray, Fl.* 1, *p.* 288. Western Texas, near the Rio Grande; *Parry.*

GALACTIA TEPHRODES, *H. B. Kth.; Gray, Pl. Wright.* 2, *p.* 34. Ravines near Rock creek; *Bigelow.* Janos, Chihuahua; *Thurber.*

GALACTIA CANESCENS, *Benth.; Torr. & Gray, Fl.* 1, *p.* 288. Sandy places between Ringgold Barracks and Laredo, Texas; *Schott.*

Galactia Wrightii, *Gray. Pl. Wright.* 1, *p.* 44. Sierra del Pajarito, July; *Schott.*

Cologania pulchella, *H. B. Kth.; Gray, l. c. p.* 45, & 2, *p.* 34. Ravines near the Copper Mines; rocky hills near Muerte, and mountains of Muerte, July—August; *Bigelow.*

Cologania longifolia, *Gray, l. c.* 2, *p.* 35. Ravines near Camp Bache, western Texas, and at the Copper Mines; *Bigelow.* A large leaved form.

Daubentonia longifolia, *DC. Mem. Leg. & Prodr.* 2, *p.* 267; *Torr. & Gray, Fl. p.* 283. Banks of the Rio Grande from Laredo down to the coast; *Schott.* Rio Coleto, Texas; *Thurber.* A large shrub, with showy racemes of bright yellow flowers. The seeds are used as a substitute for coffee.

Daubentonia? Thurberi, *Gray, Pl. Thurb. p.* 313. Hill-sides, Mabibi, Sonora, June; *Thurber.*

Glottidium floridanum, *DC. Prodr.* 2, *p.* 266; *Torr. & Gray, Fl.* 1, *p.* 294. Southwestern Texas, September; *Thurber.*

Sesbania macrocarpa, *Muhl.; DC. l. c.; Torr. & Gray, l. c.* Shore of the lower Gila, near its confluence with the Colorado; *Schott.* Cocospera, Sonora; *Thurber.*

Peteria scoparia, *Gray, Pl. Wright.* 1, *p.* 50. Gravelly hills near Rock creek, and between Van Horn's Mills and Eagle Springs, between the Pecos and the Rio Grande, July, *Bigelow.*

Pickeringia montana, *Nutt. in Torr. and Gray, Fl.* 1, *p.* 389.—(Tab. XIV.) Hills near Monterey, May; *Parry.* The fruit of this interesting shrub is still a desideratum.

Tephrosia Lindheimeri, *Gray, Pl. Lindheim.* 2, *p.* 172. Hills on the Lower Rio Grande, April; *Schott.*

Tephrosia leucantha, *H. B. K.? Gray, Pl. Wright.* 2, *p.* 36. Santa Cruz and Mabibi, Sonora; September (in fruit); *Thurber.* Sierra Verde, in the same State; *Schott.*

Tephrosia tenella, *Gray, l. c.* Santa Cruz, September; *Thurber,* and Sierra de la Union; Sonora, July; *Schott.*

Indigofera Lindheimeriana, *Scheele in Linnæa,* 21, *p.* 464; *Gray, Pl. Wright.* 1, *p.* 45. Central and western Texas, August—September.

Indigofera leptosepala, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 298. Valley of the Pecos, &c.; September.

Psoralea floribunda, *Nutt. l. c. p.* 30. Gravelly hills, Rock creek, and at the Copper Mines; also in Sonora, south of the boundary line.

Psoralea esculenta, *Pursh, Fl.* 2, *p.* 475, *t.* 22. Fields near the Presidio del Norte, August; *Parry.* Luxuriant specimens, with the leaves all crisped, undulate on the margin.

Psoralea orbicularis, *Lindl. Bot. Reg. t.* 1971; *Torr. & Gray, Fl.* 1, *p.* 304. Near San Luis Obispo and other parts of California, April; *Parry.* Peduncles often more than a foot long, and the petioles of nearly the same length. The spike is at first short and capitate, but in full flower is sometimes 6 inches long.

Psoralea macrostachya, *DC. Prodr.* 2, *p.* 220; *Torr. & Gray, Fl.* 1, *p.* 689. Banks of rivers, San Luis Rey, California, October; *Parry.*

Psoralea psycodes, *Dougl. in Hook. Fl. Bor.-Am.* 1, *p.* 136. In moist places near Monterey, California, May; *Parry.* Our specimens accord exactly with Douglas' Californian plant, and therefore belong to the var. *β. Hook. l. c.*

Eysenhardtia amorphoides, *H. B. K. Nov. Gen. & Sp.* 6, *p.* 489, *t.* 592. Common in western Texas, along the Rio Grande, also in Cohahuila, Chihuahua, and Sonora, May—September.

DALEA FORMOSA, *Torr. in Ann. Lyc. N. Y.* 2, *p.* 178; *& in Emory Rep. t.* 1. Gravelly and rocky hills and prairies along the Rio Grande, from Frontera down to Eagle Pass, also in Cohahuila, April—July. A highly ornamental little shrub, bearing a profusion of bright rose-colored flowers.

DALEA POGONATHERA, *Gray, Pl. Wright.* 1, *p.* 48. Hills along the Rio Grande and its tributaries in western Texas and the Mexican States, April—August.

DALEA LASIATHERA, *Gray, l. c.* Plains near Howard's Springs, September; *Bigelow.* Central Texas; *Thurber.*

DALEA BRACHYSTACHYXS, *Gray, l. c.* 2, *p.* 39. Plains, Leon Springs, September; *Bigelow.* Sonora; *Thurber.*

DALEA POLYGONOIDES, *Gray, l. c.* Hills near the Copper Mines, New Mexico, October; *Bigelow.*

DALEA FILIFORMIS, *Gray, l. c.* With the last; *Bigelow.* Also between Janos and Santa Maria river, Sonora, September; *Schott.*

DALEA LÆVIGATA, *Gray, l. c.* With the last; *Bigelow, Thurber.* Dry rocky places, valley of the Santa Cruz, Sonora; *Captain E. K. Smith.*

DALEA ALBIFLORA, *Gray, l. c. p.* 38. Hills near the Copper Mines, August—October; *Bigelow.* San Pedro, Sonora; *Thurber.*

DALEA ALOPECUROIDES, *Willd.; Gray, Pl. Fendl. p.* 31. Santa Cruz, Sonora, May—September; *Thurber, Captain E. K. Smith.*

DALEA WISLIZENI, *Gray, Pl. Fendl. p.* 32, *& Pl. Wright.* 2, *p.* 38. Santa Cruz, Sonora, September; *Thurber.*

DALEA AUREA, *Nutt. Gen.* 2, *p.* 101. Dry rocky places in the valley of the Limpio, July; *Bigelow.* Arroyo los Moros, on the Rio Grande, August; *Schott.*

DALEA NANA, *Torr. in Pl. Fendl. p.* 31; var. elatior, &c. *Gray, Pl. Wright.* 1, *p.* 46. Hills along the Rio Grande and its tributaries from New Mexico to Laredo, June—August.

DALEA WRIGHTII, *Gray, Pl. Wright.* 1, *p.* 49. Hill sides Frontera, and between the San Pedro and Pecos, May—October. Cañon of the Guadaloupe river, Sonora, April; *Capt. E. K. Smith.*

DALEA JAMESII, *Torr. & Gray, Fl.* 1, *p.* 308. Gravelly hills, Rock Creek, and plains along the Limpio, May—July; *Bigelow.* Mule Springs, New Mexico; *Thurber.*

DALEA LACHNOSTACHYS, *Gray, Pl. Wright.* 1, *p.* 46. With the last; *Parry, Bigelow.*

DALEA MOLLIS, *Benth. Pl. Hartw. p.* 306. Hills and rocky places along the Rio Grande, Texas, westward to the Colorado desert, California; February—July.

DALEA LANATA, *Spreng. Syst.* 3, *p.* 327. Sandy ravines and hill sides on the Rio Grande, Texas; also in Cohahuila and Chihuahua, September.

DALEA ARGYRÆA, *Gray, Pl. Wright.* 1, *p.* 47. Rocky hills between the Nueces and the Rio Grande, September.

DALEA GREGGII, *Gray, Pl. Thurb. p.* 315. Agua Prieta, March; *Parry.* Cerro Gordo, in Durango; *Thurber.* Sierra del Pajarito, Sonora, July; *Schott.* Leaflets sometimes only 3. Flowers bright rose color.

DALEA EMORYI, *Gray, l. c.; Torr. in Pacif. R. Road Expl.* 6, *p.* 360, *t.* 11. Valley of the Gila, May—July; *Schott, Thurber.*

DALEA SCOPARIA, *Gray, Pl. Fendl. p.* 32, *& Pl. Wright.* 1, *p.* 47. Sandy hills near Elceario, June; *Bigelow.* Laguna de los Patos, Chihuahua; *Thurber.*

DALEA FRUTESCENS, *Gray, Pl. Lindh.* 2, *p.* 175. Hills and rocky places along the Rio Grande and its tributaries, August—September.

DALEA SPINOSA, *Gray, Pl. Thurb. p.* 315; *Torr. Bot. Parke. in Pacif. R. Road Expl.* 7, *p.* 9, *t.* 3. On the lower Rio Gila; *Thurber.* Dry beds of rivers in the Californian desert; *Schott.* The leaves of young shoots and seedlings are obovate-oblong, toothed and dotted with glands.

DALEA SCHOTTII (n. sp.): fruticosa; ramis flexuosis glaberrimis, ramulis in spinas subpungentes abuentibus; foliis simplicissimus sparsis anguste linearibus; pedunculis 2–3-floris; calycis dentibus late ovatis tubo glabro eglanduloso duplo brevioribus; corolla violacea. Diluvial banks of the Colorado, February; *Schott.* Branches zigzag, smooth, yellow. Leaves 8–10 lines long, scarcely a line wide, hoary-pubescent above, green, and marked with row of impressed dots on each side underneath. Flowers produced at the extremity of short branches, usually two together, on short pedicels; the bracts resembling the leaves, only smaller. Calyx without glands, somewhat turbinate, smooth, the broad teeth pubescent on the margin. Corolla deep violet. Pods not seen.

PETALOSTEMON EXILE, *Gray, Pl. Wright.* 2, *p.* 51. Hills and rocky places at the Copper Mines, New Mexico, September; *Bigelow.* Santa Cruz, Sonora; *Thurber.*

PETALOSTEMON CANDIDUM, *Michx. Fl.* 2, *p.* 49, *t.* 37, *f.* 1. Near the Copper Mines, and low places between Van Horn's Wells and Muerte, July; *Bigelow.* Rio de Sta. Cruz and Prodrero, Sonora, June; *Schott.* Our plant resembles Fendler's specimens named P. gracile by Dr. Gray, but it is erect.

PETALOSTEMON EMARGINATUM, *Torr. & Gray, Fl.* 1, *p.* 311. Near Ringgold Barracks; *Schott.* We have never before received specimens of this plant since it was sent to us from Drummond's Texan collection.

ROBINIA NEO-MEXICANA, *Gray, Pl. Thurb. p.* 315. Along the Mimbres, New Mexico; *Thurber,* and on Ben Moore, near the Copper Mines; *Bigelow.*

AMORPHA LAEVIGATA, *Nutt.* var. PUBESCENS, *Gray, Pl. Wright.* 1, *p.* 49. Hills at the Copper Mines, and on the Rio Grande below the mouth of Escondido creek, March; *Bigelow, Schott.* Hardly distinct from the next.

AMORPHA FRUTICOSA, *Linn.; Torr. & Gray, Fl.* 1, *p.* 305. A. Californica, *Nutt. l. c.* Mountains east of San Diego, California; *Parry.* Mabibi, Sonora, June; *Thurber.* I can find no reliable characters for distinguishing the two species here united. Mr. Nuttall's plant was described from specimens in which the flowers were scarcely unfolded, and the fruit of which was not collected.

GLYCYRRHIZA LEPIDOTA, *Nutt. Gen.* 2, *p.* 106; *Bot. Mag. t.* 2150; *Gray, Pl. Wright.* 1, *p.* 50. G. glutinosa, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 298. Valley of the Rio Grande below San Elceario, June; *Thurber.* Ojo de Vaca, Chihuahua; *Thurber.* San Felipe, California; *Parry.*

MEDICAGO SATIVA, *Linn.; Torr. & Gray, Fl.* 1, *p.* 321. Banks of the acequia, near El Paso, May; *Bigelow.* This is no doubt an introduced plant. It seems to be naturalized in many parts of the Mexican States.

MEDICAGO DENTICULATA, *Willd.; Torr. & Gray, l. c.* Naturalized in western Texas, New Mexico and the Mexican States west of the Rio Grande; also throughout California, wherever the Spanish missions were established.

MELILOTUS PARVIFLORA, *Desf.; Torr. & Gray, l. c.* M. occidentalis, *Nutt. l. c.* Western Texas, Chihuahua, Sonora and California, April—May. Introduced from Europe.

TRIFOLIUM FIMBRIATUM, *Lindl. Bot. Reg. t.* 1070*; Torr. & Gray, Fl.* 1, *p.* 317. Near San Diego, California, May; *Parry.* Napa and San Isabel in the same State; *Thurber.* All our specimens of this plant are clothed with a minute glandular pubescence. The leaflets are lanceolate or oblong-lanceolate, and conspicuously fringed with narrow spinulose serratures. Teeth of the calyx always entire, and broadly lanceolate at the base. Legumes 2-seeded. The Indians of California collect the seeds for food.

TRIFOLIUM HETERODON, *β. Torr. & Gray, Fl.* 1, *p.* 318. Monterey, California, May; *Parry.* Differs from the preceding in being glabrous, with oblong or obovate leaflets; the stipules much less cut; the calyx-teeth subulate from a narrow base; the two upper ones 2—3-cleft, and in the legumes 4—5-seeded.

TRIFOLIUM SPINULOSUM, *β. Torr. & Gray, l. c.* Near Monterey, California, May; *Parry.* Near the last, but distinguished by the entire teeth of the calyx, more laciniate stipules and 2-seeded legumes. From T. fimbriatum it differs in being glabrous, and in the much longer and narrower calyx-teeth.

TRIFOLIUM MACRÆI, *Hook. & Arn. Bot. Misc.* 3, *p.* 179. T. albo-purpureum, *Torr. & Gray, Fl.* 1, *p.* 319. Santa Barbara, California, April; *Parry.*

TRIFOLIUM TRIDENTATUM, *Lindl. Bot. Reg. sub t.* 1070. T. involucratum, *Torr. & Gray, l. c. non Willd.* Santa Barbara, California; *Parry.*

TRIFOLIUM INVOLUCRATUM, *Willd. Sp.* 3, *p.* 1372; *Gray, Pl. Wright.* 2, *p.* 41. Hills at the Copper Mines and along the Mimbres, New Mexico, June; *Bigelow.* Mabibi, Sonora; *Thurber.*

TRIFOLIUM BEJARIENSE, *Moricand, Pl. Nouv. Amer. p.* 2, *t.* 2. Western Texas, April; *Wright.*

TRIFOLIUM FUCATUM, *Lindl. Bot. Reg. t.* 1883; *Torr. & Gray, l. c.* T. physopetalum, *Fisch. & Mey. Ind. Sem. St. Petersb.* 1837, *p.* 18. Santa Barbara, and on the beach San Juan Capristano, California, March—May; *Parry.* San Isabel; *Thurber.* As tout species, easily distinguished by its very large head, and broadly lanceolate entire segments of the involucre.

TRIFOLIUM AMPLECTENS, *Torr. & Gray, l. c.* 1, *p.* 319*; Hook. & Arn. Bot. Beech. p.* 330, *t.* 78. San Fernando and San Luis Obispo, California; *Parry.*

TRIFOLIUM VARIEGATUM, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 317, Sonora, June; *Thurber.*

TRIFOLIUM MICROCEPHALUM, *Pursh, Fl.* 2, *p.* 478; *Torr. & Gray, l. c.* San Diego, California, May; *Thurber.*

HOSACKIA OBLONGIFOLIA, *Benth. Pl. Hartw. p.* 305. Mountains east of San Diego, California, June; *Parry.* Resembles H. bicolor, but differs in being pubescent, and in the narrowly oblong acute leaflets, as well as in other characters. The legume is straight, about an inch and a quarter long, and scarcely two lines wide. I have never seen H. bicolor with bracts, but in this species there is always a unifoliate bract to each head of flowers.

HOSACKIA GRACILIS, *Benth. in Linn. Trans.* 17, *p.* 365; *Torr. & Gray, Fl.* 1, *p.* 323. (TAB. XV.) Monterey, California, May. A rare species which we have received only from the vicinity of Monterey. It has much the appearance of a depauperate state of H. bicolor. The petiolate trifoliate bract is always present.

HOSACKIA STRIGOSA, *Nutt. in Torr. & Gray, l. c.* H. rubella, *Nutt. l. c.* Near Santa Barbara, California, March; *Parry.* Annual. Stem branching from the base; the branches 3—4

inches long. Flowers nearly one-third of an inch long. H. nudiflora, *Nutt.* seems hardly distinct from this species. In H. rubella we find on the same specimens some peduncles with unifoliolate bracts, and others in which the bracts are reduced to minute gland-like scales.

HOSACKIA PUBERULA, *Benth. Pl. Hartw. p.* 305; *Gray, Pl. Wright.* 1, *p.* 50; *Torr. Bot. Parke in Pacific R. Road Expl.* 7, *p.* 10, *t.* 4. Western Texas, New Mexico, Chihuahua, Sonora and California.

H. PUBERULA, var. NANA, etc., *Gray, l. c.* Organ mountains, New Mexico, *Bigelow.* Ojo de Vaca, Chihuahua; *Thurber.*—H. Wrightii, *Gray* seems to pass into this species. A variety with obovate leaflets was found by Schott, in the valley of the Gila, and by Captain E. K. Smith, in Sonora.

HOSACKIA PURSHIANA, *Benth.; Torr. & Gray, l. c.* Between Tucson and the Rio Gila, Sonora, March—September; *Parry, Thurber.* Monterey, California; *Parry.* Varies with the upper, and sometimes all the leaves unifoliolate, when it is the H. unifoliolata, *Hook. Fl. Bor.-Am.* 1, *p.* 135. This synonym was inadvertently overlooked in the Flora of North America, as it was also by Hooker in noticing the same form in *Pl. Geyer.*—(See Lond. Jour. Bot. 7. p. 210.)

HOSACKIA MARITIMA, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 326. San Isabel, California, May; *Thurber.*

HOSACKIA SUBPINNATA, *Torr. & Gray, l. c.; Benth. Pl. Hartw. p.* 306. San Isabel, California, May; *Thurber.* H. Wrangeliana should probably be united to this species.

HOSACKIA BRACHYCARPA, *Benth. l. c.* Sonora; *Thurber.* The mature pod is nearly twice as long as the calyx, but is always much shorter than in H. subpinnata.

HOSACKIA ARGOPHYLLA, *Gray, Pl. Thurb. p.* 316. On rocks, San Isabel, California, May; *Thurber.*

HOSACKIA TOMENTOSA, *Hook. & Arn. Bot. Beechey, p.* 137; *Torr. & Gray, l. c.* Monterey, California; *Parry.*

HOSACKIA CYTISOIDES, *Benth. l. c.; Torr. & Gray, l. c.* β. Syrmatium glabrum, *Vogel?* Monterey, California, May; *Parry.* Leaflets mostly 3. Flowers reddish.

HOSACKIA SCOPARIA, *Nutt. in Torr. & Gray, l. c.* Ravines near San Diego, and in other parts of California, May; *Parry, Thurber.*

HOSACKIA JUNCEA, *Benth. l. c.* In the Colorado desert; *Schott.* Too near the last species.

ASTRAGALUS COBRENSIS, *Gray, Pl. Wright.* 2, *p.* 43, (*adnot.*) Copper Mines, New Mexico, April, and Ben Moore, Cohahuila, June (fruit); *Bigelow.*

ASTRAGALUS BIGELOVII, *Gray, l. c. p.* 42. Between the Rio San Pedro and the Rio Grande, western Texas; also at the base of the Organ mountains and near the Copper Mines, New Mexico; west to the Santa Cruz valley, Sonora; March—May.

ASTRAGALUS DIDYMOCARPUS, *Hook. & Arn. Bot. Beechey, p.* 334, *t.* 81; *Torr. & Gray, l. c.* High beach near San Juan Capristano, and at Santa Barbara, California, March; *Parry.* The leaflets in most of our specimens are narrowly cuneate-oblong, and notched at the summit.

ASTRAGALUS NUTTALLIANUS, *DC.; Torr. & Gray, Fl.* 1, *p.* 334; *Gray, l. c. p.* 52. Valleys of the Rio Grande and its tributaries in western Texas, New Mexico, Cohahuila and Chihuahua; also in Sonora; March—June. Variable in size, foliage, and other characters.

ASTRAGALUS HUMISTRATUS, *Gray, Pl. Wright.* 2, *p.* 43. Hills at the Copper Mines, June—July; *Bigelow, Thurber.* Leaflets more obtuse than in Wright's specimens.

Astragalus glareosus, *Dougl. in Hook. Fl. Bor.—Am.* 1, *p.* 152? Near the Copper Mines, May—June; *Bigelow.* Guadaloupe Pass, Sonora.

Astragalus Hartwegi, *Benth. Pl. Hartw. p.* 10. El Podrero, near the 110° of longitude, Sonora; *Schott.*

Astragalus cyaneus, *Gray, Pl. Fendl. p.* 34. Doña Ana, New Mexico, April; *Thurber.*

Astragalus vacarum, *Gray, Pl. Wright.* 2, *p.* 43. Ojo de Vaca, Chihuahua; *Thurber.*

Astragalus (Phaca) tephrodes, *Gray, Pl. Wright.* 2, *p.* 45. Gravelly plains near the base of the Organ mountains and on the Mimbres, New Mexico, April—May; *Bigelow, Thurber.*

Astragalus (Phaca) Fendleri, *Gray, l. c. p.* 44. Hills at the Copper Mines, October, (in fruit); *Bigelow.*

Astragalus (Phaca) Sonoræ, *Gray l. c.* Tubac, Sonora, March; *Parry.*

Astragalus (Phaca) Thurberi, *Gray, Pl. Thurb. p.* 312. Fronteras, Sonora, June; *Thurber.*

Astragalus (Phaca) leucopsis, *Torr. & Gray, Fl.* 1, *p.* 694. Phaca canescens, *Nutt. in Torr. & Gray, l. c. p.* 344, *non Hook. & Arn.* (Tab. XVI.) San Diego, California; *Parry, Schott.* The pods are about an inch and a quarter long, excluding the stipe, which is 4 lines long.

Astragalus (Phaca) crotalariæ, *Benth. Pl. Hartw. p.* 307. (Tab. XVII.) Mountains east of San Diego, California, June, (with flowers and ripe pods;) *Parry.* A stout species, commonly 4—6 feet high.

Astragalus (Phaca) triflorus, *Gray, Pl. Wright.* 2, *p.* 45. Phaca triflora, *DC.* Sandy plains and mountains on the upper Rio Grande, in New Mexico and western Texas; also in Cohahuila; April.

Oxytropis Lamberti, *Pursh, var. Gray, Pl. Wright.* 1, *p.* 53. Hills near the Copper Mines, and Ojo Caliente; *Bigelow.*

Chætocalyx Wislizeni, *Gray, Pl. Wright.* 1, *p.* 51, *&* 2, *p.* 45. (Tab. XVIII, fig. 5—7.) Mount Carmel, and mountains of Santa Rosa, Cohahuila, October—November, (in fruit;) *Parry, Bigelow.*

Chætocalyx Schottii (n. sp.:) prostratus fere glaber; foliolis 5 ovatis acutis valde mucronatis concoloribus; dentibus calycis lineari-subulatis nudis tubo sub duplo-longioribus; carina alæ subæquantibus; staminibus superne æqualiter diadelphis. (Tab. XVIII.) Sierra Verde, Aroyo de los Samotas, Sonora, August; *Schott.* Stem branching from a somewhat woody base, slender, 2—3 feet long, twining towards the extremity. Leaflets 6—8 lines long, thin, those of the lowest leaves obtuse, the others acute and pointed with a conspicuous mucro. Flowers about six in axillary fascicles or short racemes. Pedicels rather shorter than the flowers. Calyx broadly campanulate, entirely destitute of glands. Corolla yellow. Vexillum ovate-oblong, emarginate, slightly pubescent. Wings and keel-petals oblong, acute. Stamens monadelphous below, diadelphous above, five on each side of the pistil. Ovary, mostly three-ovuled. Mature pod not known, but the young ones are 2—3-jointed; the terminal joint foliaceous and dilated. Differs from C. Wislizeni in the narrow acute leaves, and the long teeth of the calyx.

Zornia tetraphylla, *Michx. Fl.* 2, *p.* 76; *Torr. & Gray, Fl.* 1, *p.* 354. Laredo and Ringgold Barracks, June; *Schott.*

Desmodium Grahami, *Gray, Pl. Wright.* 2, *p.* 48. Rocky places, on mountains of the Limpio river, and hills at the Copper Mines, July—August; *Bigelow.*

Desmodium annuum, *Gray, l. c.* Santa Cruz, Sonora, September; *Thurber.*

Desmodium exiguum, *Gray, l. c.* With the last; *Thurber.*

Desmodium paniculatum, *DC.; Torr. & Gray, Fl.* 1, *p.* 363. Devil's River valley, western Texas, (flowers and fruit), September; *Bigelow.*

Desmodium cinerascens, *Gray, l. c. p.* 48. Sonora, in various places, June; *Thurber.*

Desmodium Wrightii, *Gray, Pl. Lindh.* 2, *p.* 177. Dry mountain ravines, on the Limpio; July, (fruit;) *Bigelow.*

Desmodium Neo-Mexicanum, *Gray, Pl. Wright.* 1, *p.* 53. Copper Mines, New Mexico, and Santa Cruz, Sonora, September; *Thurber.* A variety with broader and more strongly reticulated leaves than usual was found by Schott on the mountains of San Estaban, in Sonora.

Lespedeza violacea, *Pers.* var. sessiliflora, *Torr. & Gray, Fl.* 1, *p.* 367. Central Texas; *Schott.*

Crotalaria lupulina, *DC. Prodr.* 2, *p.* 133. Brazos Santiago, and Sonora, May; *Schott.* Chihuahua and Sonora; *Thurber.* Remarkable for its long spur-like projecting keel.

Crotalaria sagittalis, *Linn.; Torr. & Gray, Fl.* 1, *p.* 370. Sonora; *Thurber.*

Lupinus densiflorus, *Benth. in Hort. Trans.* (*n. ser.*) 1, *p.* 409; *Torr. Pacif. Railroad Expl.* 4, *p.* 81. L. Menziesii; *Agardh, Syn. Lup. p.* 2. Monterey, California, May; *Parry.* San Diego; *Thurber.*

Lupinus hirsutissimus, *Benth. l. c.* San Pasqual, California, May; *Thurber.*

Lupinus subcarnosus, *Hook. Bot. Mag. t.* 3467; *Gray, Pl. Wright.* 1, *p.* 54. L. Texensis; *Hook.* Western Texas, May—June; *Thurber.*

Lupinus truncatus, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 373. San Diego, California, March—May; *Parry, Thurber.*

Lupinus sparsiflorus, *Benth. Pl. Hartw. p.* 303. Near San Diego, California, May; *Thurber.*

Lupinus bicolor, *Lindl. Bot. Reg. t.* 1109; *Torr. & Gray, l. c.* San Pasqual, California, May; *Thurber.*

Lupinus micranthus, *Dougl. in Bot. Reg. t.* 1251. Napa Mountains, California, March; *Thurber.*

Lupinus pusillus, *Pursh, Fl.* 2, *p.* 468. Gravelly plains near the Organ Mountains, and hills at the Copper Mines, New Mexico; also near Frontera, March—April. Tucson, Sonora, and valley of the Santa Cruz, Sonora; *Parry, Capt. E. K. Smith.*

Lupinus rivularis, *Lindl. Bot. Reg. t.* 1595; *Torr. & Gray, Fl.* 1, *p.* 376. San Diego, California; *Parry.*

Lupinus cytisoides, *Agardh, Lup. p.* 18. San Isabel, California, May; *Thurber.*

Lupinus affinis, *Agardh, l. c. p.* 20. Monterey, California; *Parry.*

Lupinus Mexicanus, *Lagasca; Gray, Pl. Wright.* 2, *p.* 49. On the mountain called Ben Moore, near the Copper Mines, and at Crucis, New Mexico, April—May; *Bigelow.*

Lupinus ornatus, *Dougl. in Bot. Reg. t.* 1216. Napa county, California, March; *Thurber.*

Lupinus Douglasii, *Agardh, Lup. p.* 34. South of San Louis Obispo, and near Monterey, California; *Parry.*

Lupinus albifrons, *Benth.; Agardh, l. c. p.* 33. Monterey; *Parry;* and near San Pasqual, California, May; *Thurber.*

Lupinus arboreus, *Sims in Bot. Mag. t.* 682; *Agardh, l. c. p.* 25; *Benth. Pl. Hartw. p.* 303. Near San Diego and Monterey, California, May; *Parry.* A bushy shrub, with a stem which

is sometimes 1½ inch in diameter. It is a rare species in California, but is not uncommon in the gardens of Europe, into which it is generally thought to have been introduced from South America; but we strongly suspect that the seeds were brought by Menzies to England from California.

LUPINUS LITTORALIS, *Dougl.; Agardh, l. c. p.* 36. Monterey, California, May; *Parry.*

SOPHORA SERICEA, *Nutt. Gen.* 1, *p.* 280; *Gray, Pl. Wright.* 1, *p.* 54. Low moist places along the Rio Grande and its tributaries, from New Mexico to San Elceario; also in Coahuila; May—June.

SOPHORA SPECIOSA, *Benth.; Gray, Pl. Wright.* 1, *p.* 54. Rocky valley of the Pecos; September, (in fruit;) *Bigelow.* Fort Inge, Texas; *Parry.* Rinconada Pass, Neuvo Leon; *Thurber.*

SOPHORA TOMENTOSA, *Linn.: Torr. & Gray, Fl.* 1, *p.* 389. Brazos, Santiago, Texas; May; *Schott.*

THERMOPSIS FABACEA, *DC. Prodr.* 2, *p.* 99. T. montana, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 388. Napa county, California, March; *Thurber.* Near the summit of the mountains east of San Diego, California, June; *Parry.*

OLNEYA TESOTA, *Gray, Pl. Thurb. p.* 328; *Torr. in Pacif. Railroad Expl.* 7, *p.* 10, *t.* 5. Ravines in the table lands on the lower Gila, often in company with Cercidium floridum; *Parry, Thurber.* Hills near Fort Yuma, California, January; *Schott.*

CERCIS OCCIDENTALIS, *Torr. in Gray, Pl. Lindheim.* 2, *p.* 177. Valley of the Devil's river, western Texas; *Bigelow.* Also in California. Mr. Blake informs me that the camels, lately imported into the United States, are very fond of the leaves of this plant.

HOFFMANSEGGIA JAMESII, *Torr. & Gray, Fl.* 1, *p.* 54; *Gray, Pl. Wright.* 2, *p.* 49. Sandy places near Fort Fillmore, and other places, in New Mexico, April—September; *Bigelow.*

HOFFMANSEGGIA CAUDATA, *Gray, Pl. Lindh.* 2, *p.* 179; *Pl. Wright.* 1, *p.* 54. On the lower Rio Grande, April; *Schott.* In our specimens there are from 2—4 pinnæ. The leaflets vary from 4 to 7 pairs in the lateral pinnæ, and from 9—15 (rarely only 7) in the terminal one. Sometimes they are scarcely a line in length.

HOFFMANSEGGIA MICROPHYLLA (n. sp.:) puberula: ramis elongatis virgatis; pinnis unijugis cum impari, lateralibus 10—12-foliolatis, terminali 14—20-foliolata, foliolis minutis oblongis eglandulosis; bracteis stipulisque caducis; racemo laxifloro elongato; legumine subfalcato acuto glandulis subsessilibus asperato. Sandy desert of the Colorado, California; *Schott.* Plant apparently two feet or more in height. Stem and branches green, minutely velvetty, pubescent. Lateral pinnæ 3—4 lines long, the terminal one nearly twice as long. Leaflets scarcely a line in length, pubescent. Calyx softly pubescent. Corolla yellow; the claws of all, and the back of the vexillum, somewhat glandular. Ovary thickly covered with pale disciform glands. Pods sessile, about ¾ of an inch long and nearly 3 lines wide, nearly straight on the upper suture, 4—6-seeded.

HOFFMANSEGGIA OXYCARPA, *Gray, Pl. Wright.* 1, *p.* 55. Vallies and hills of the San Pedro river, Texas, May; *Bigelow.*

HOFFMANSEGGIA STRICTA, *Benth. in Gray, Pl. Wright.* 1, *p.* 56. Sterile soils along the Rio Grande, from El Paso to Eagle Pass, Texas; also in New Mexico, April—July.

H. STRICTA β. DEMISSA, *Gray, l. c.* San Elceario; *Parry.* On the Pecos; *Schott.*

HOFFMANSEGGIA MELANOSTICTA, *Gray, l. c. p.* 54, (*adnot.*) Pomaria melanosticta, *Schauer.* On the Rio Grande below the cañon of San Carlos, October, (in flower and fruit;) *Parry.* Rinconada, and Monterey, Neuvo Leon; *Dr. Edwards.* Our plant differs somewhat from the

description of Schauer in Linnæa. There are only 2 or 3 pairs of leaflets, and the pod is 3—4-seeded. The vexillum, also, is destitute of glands and dots.

CASPARIA, *n. sp.?* Rocky hills near Santa Rosa, Chihuahua; *Parry*. An erect shrub, 2–3 feet high. Branches slender, flexuous, smooth. Leaflets distinct to the base, semiovate, very obtuse. 3-nerved, very smooth. Pods (old and imperfect) about 2 inches long and one-third of an inch wide

CERCIDIUM TEXANUM, *Gray, Pl. Wright.* 1, *p.* 58. Common on the Rio Grande from El Paso to Eagle Pass, forming dense thickets in many places.

CERCIDIUM FLORIDUM, *Benth. in Gray, l. c. (adnot.)*; *Torr. in Pacif. R. Road Expl.* 6, *p.* 360, *t.* 3. On the Lower Gila and Colorado rivers; *Emory, Schott*. This is the Palo Verde of the Mexicans, and the Green-bark Acacia of American travellers.

CASSIA PUMILIO, *Gray, Pl. Lindh.* 2, *p.* 180, & *Pl. Wright.* 1, *p.* 59. Elm Creek valley, near Eagle Pass, and at the mouth of the Pecos; *Schott, Bigelow*.

CASSIA RŒMERIANA, *Scheele in Linnæa*, 21, *p.* 457; *Gray, Pl. Lindh. l. c.* Arroyo Zoquete and gravelly hills near Rock creek; July—September.

CASSIA BAUHINIOIDES, *Gray, Pl. Lindh. l. c.*, & *Pl. Wright.* 1, *p.* 59. Sandy plains and rocky situations, Leon springs and along the Rio Grande from El Paso down to Eagle Pass; also in Chihuahua, Durango, and Sonora, April—August. Leaflets but a single pair in all our specimens. Near Presidio San Vincente Dr. Parry found a variety with the leaflets broadly ovate. The same form is in Mr. Wright's collection.

CASSIA LINDHEIMERIANA, *Scheele, l. c.*; *Gray, l. c.* Dry ravines near the Flounce mountains. Between the San Pedro and the Pecos; also along the Rio Grande, June, August. Arroyo del Pozo Verde; *Schott*.

CASSIA WISLIZENI, *Gray, Pl. Wright.* 1, *p.* 60, & 2, *p.* 50. Hills and rocky places. Cañon of Bossecillos, on the Rio Grande; August. *Parry, Bigelow*. San Bernardino, Sonora; June. *Thurber*. Leaflets sometimes 4 pairs, larger than in Wright's specimens. A neat and showy plant, well deserving of cultivation.

CASSIA WRIGHTII, *Gray, Pl. Wright.* 2, *p.* 50. On the Rio Mimbres, New Mexico; June, (flowers and fruit;) *Bigelow*. Sierra de los Tanos, Sonora; *Schott*.

CASSIA NICTITANS, *Linn.*; *Torr & Gray, Fl.* 1, *p.* 396. Comanche springs and Leon springs; *Bigelow*. Differs from the eastern plant in its narrower and more numerous seeded pods, and in the stipitate glands of the petioles; but it does not appear to be a distinct species.

CASSIA CHAMÆCRISTA, *Linn.*; *Torr. & Gray, Fl.* 1, *p.* 395. Sandy places between Ringgold barracks and Laredo; June. *Schott*.

CASSIA CHAMÆCRISTOIDES, "*Collad. Mon. Cass. p.* 134." C. cinerea, *Cham. & Schlecht.* With the last; *Schott*.

CASSIA OBTUSIFOLIA, *Linn.*; *Torr. & Gray, Fl.* 1. *p.* 394. Island of the Lost Rock, in the Lower Rio Grande; *Schott*.

PARKINSONIA ACULEATA, *Linn.*; *DC. Prodr.* 2, *p.* 486. Alluvions and prairies of the Lower Rio Grande, and hills of the Colorado, near Fort Yuma, California; *Schott*. Fort Duncan, Texas; *Dr Edwards*. Between Reynosa and Matamoras, Mexico; *Dr. Gregg*. An ornamental prickly shrub, now cultivated or naturalized in most of the warmer parts of the world, but probably, as Alph. De Candolle thinks, of American origin. According to Mr. Schott it is valued by the Mexican Indians as a febrifuge and sudorific, and also as a remedy in epilepsy.

PARKINSONIA MICROPHYLLA, *Torr. in Pacif. R. Road Expl.* 4, *p.* 82: glabriuscula ramosissima;

ramulis (saepe?) in spinas abuentibus; foleis geminis vel teenis pinnatis, petiolo cammuni exalato supra canaliculato, foliolis 4—7-jugis minimis (1 lin. long.) suborbiculatis late ovalibusve obtusis subcoriaceis; staminibus petalis longioribus. On the Colorado, near Fort Yuma; *Schott*. This is an interesting addition to our Flora, being an undoubted native Parkinsonia, entirely distinct from P. aculeata, and much more nearly related to P. Africana, *Soud.* (*in Linnœa*, 23, *p.* 38.) We have seen no specimens showing the inflorescence but only a few loose flowers from the collections of Mr. Schott. From the fructiferous specimens it would appear that the racemes are fewer-flowered and the pedicels shorter than in P. aculeata. The flowers, too, are smaller, the stamens much more exserted, and the petals (except the vexillum) are ovate, not roundish, as in that species. The pods are nearly the same in both. These vary from 2 to several-seeded, and are constricted between the seeds with a very long acumination.

Cæsalpinia pulcherrima, *Swartz; Torr. & Gray, Fl.* 1, *p.* 397. Ures, Sonora, October; *Thurber.*

Algarobia glandulosa, *Torr. & Gray, l. c. p.* 399; *Gray, Pl. Wright.* 1, *p.* 60. Sandy soils along the Rio Grande and its tributaries and in the Mexican States. Common on the bottom lands of the Gila. This is the celebrated mesquite, so often noticed in the reports of western exploration. Dr. Gray (l. c.) suspects that it may be united (together with P. dulcis and P. Siliquastrum) to P. juliflora. It affords a gum nearly equal to gum arabic, of which it stated that large quantities have lately been sent to San Francisco from Mexico.

Strombocarpa pubescens, *Gray, Pl. Wright. p.* 60; *Torr. Pacif. R. Road Expl.* 6, *p.* 360, *t.* 4. Valley of the Rio Grande from New Mexico, 20 miles below San Elceario; *Bigelow.* Bottom lands of the Rio Gila and R. Colorado. The *Screw-bean* or *Screw-mesquite* of American travellers and Tornillo of the Sonorians.

Strombocarpa cinerascens, *Gray, l. c. p.* 61, *adnot.* Boggy places, Fort McIntosh, and other places on the Lower Rio Grande, May, November; *Schott.* The thorns are variable in length, being sometimes longer, sometimes much shorter than the leaves. Pods like those of S. pubescens, except that they are a little thicker.

Neptunia lutea, *Benth. in Hook. Torr. Bot.* 4, *t.* 356. Painted Caves, and near Eagle Pass, western Texas, June; *Bigelow, Schott.* In our specimens the fruit is sessile, while it is stipitate in the Florida plant.

Desmanthus velutinus, *Scheele in Linnœa*, 21, *p.* 456; *Gray, Pl. Lindh.* 2, *p.* 183. Hills at the Copper Mines, August; *Bigelow.* Common near Eagle Pass; *Schott.*

Desmanthus Jamesii, *Torr. & Gray, Fl.* 1, *p.* 402; *Gray, Pl. Wright.* 2, *p.* 63. Gravelly hills along Rock Creek; and rocky places at the Copper Mines. July, (in flower,) August, (in fruit); *Bigelow, Parry.*

Mimosa fragrans, *Gray, Pl. Lindh.* 2, *p.* 182; *& Pl. Wright.* 1, *p.* 61. Head of the Rio San Pedro; *Bigelow.* Eagle Pass, April—June; *Schott.*

Mimosa borealis, *Gray, Pl. Fendl. p.* 39, *& Pl. Wright. l. c.* Plains near Live Oak Creek, September, (in fruit); *Bigelow.*

Mimosa Lindheimeri, *Gray, Pl. Lindh.* 2, *p.* 181. Rocky and gravelly hills and ravines, July; *Bigelow.*

Mimosa dysocarpa, *Benth. in Gray, Pl. Wright*, 1, *p* 62. On the Cibolo of the Rio Grande and Rock Creek; also hills at the Copper Mines, July—August; *Bigelow.*

Mimosa malacophylla, *Gray, Pl. Lindh.* 2, *p.* 182, *adnot.*, *& Pl. Wright.* 1, *p.* 163. Rocky

hills near Santa Rosa, Chihuahua: *Bigelow*. Sometimes there are one or two short prickles or teeth on the margin of the pods.

M. MALACOPHYLLA var. GLABRA, *Gray*. La Blanca on the Lower Rio Grande; *Schott*. The same as No. 815 and 2235, *Berlandier*.

MIMOSA FLEXUOSA, *Benth. in Gray, Pl. Wright*. 1, *p*. 62. Hills near Rock Creek, July; *Bigelow*.

MIMOSA BIUNCIFERA, *Benth. Pl. Hartw. p*. 12; *Gray, Pl. Wright*. 2, *p*. 61. With the last, and at Eagle Springs. Mababi, Sonora, June; *Thurber*; Sierra del Pajarito; *Schott*.

MIMOSA STRIGILLOSA, *Torr. & Gray, Fl*. 1, *p*. 399. On the Lower Rio Grande, May; *Schott*.

MIMOSA BERLANDIERI (Gray, MSS. Habbasiæ Rubicaulium): "fruticosa erecta; ramis et interdum petiolis aculeis sparsis brevibus rectis armatis, junioribus puberulis setis brevioribus parce strigosis; stipulis ovato-subulatis; pinnis 4—6-jugis, costis subtus strigosis; foliolis 20—40-jugis linearibus acutiusculis glabellis obsolete 3—4-nervatis; capitulis pedunculatis racemoso-subpaniculatis; floribus tetrameris; calyce minimo truncato; legumine breviter stipitato oblongo-lineari nudo hirtello 8—10-articulato." Banks of the Lower Rio Grande, towards its mouth, November; *Schott*. Environs of Matamoras; *Berlandier*, (No. 3146.)

SCHRANKIA UNCINATA, *Willd. Sp*. 4, *p*. 1043? Stone-wreath Hills, on the Lower Rio Grande, April; *Schott*. The pods not being sufficiently mature, we cannot be certain of the species.

CALLIANDRA HUMILIS, *Benth. in Lond. Jour. Bot*. 5, *p*. 103; *Gray, Pl. Wright*. 2, *p*. 53. Near the Copper Mines, New Mexico, June—August; *Bigelow*.

CALLIANDRA RETICULATA, *Gray, l. c*. With the last; August.

CALLIANDRA HERBACEA, *Engelm. in Pl. Fendl. p*. 39; *Gray, Pl. Wright*. 1, *p*. 63. Low places on the Limpio, and near Rock Creek, July; *Bigelow*.

CALLIANDRA CHAMÆDRYS, *Engelm. l. c.; Gray, l. c*. On the more elevated parts of the Sierras of Sonora, March—July; *Thurber, Schott*.

CALLIANDRA (PORTORICENSIS, *Benth*. var.): glabriuscula, inermis; ramulis gracilibus; pinnis bijugis, foliolis 4—5-jugis oblongis obtusissimis sub remotis membranaceis basi inferiore subauriculatis ciliolatis, petiolis elongatis; stipulis lanceolatis striatis rigidis; pedunculis petiolo longioribus; calyce profunde 5-fido globoso corolla glabra dimidio breviore. Arroyo de los Samotas, Sierra Verde, Sonora, August; *Schott*. Peduncles 1½—2½ inches long. Flowers pale rose color. Filaments half an inch long. Pods not seen.

LUCÆNA RETUSA, *Gray, l. c. p*. 64. Hills and gravelly places between the San Pedro and the Rio Grande, July—September; *Bigelow, Schott*.

ACACIA WRIGHTII, *Benth. in Gray, l. c*. On the Rio Grande, Texas; and Sierra del Pajarito, Sonora, July—August; *Schott*.

ACACIA GREGGII, *Gray, l. c. p*. 65. Dry hills, El Paso and down the Rio Grande to the Great Cañon; also hills and mountains along the Gila to California, May—July.

ACACIA RIGIDULA, *Benth. in Lond. Jour. Bot*. 1, *p*. 501. Rocky hills, Leona. Also found by Dr. Edwards and Major Eaton near Monterey, Neuvo Leon. The slender spines are sometimes more than an inch long.

ACACIA RŒMERIANA, *Scheele in Linnæa*, 21, *p*. 456. Fort Inge, Texas; *Parry*. Mountains and rocky places, Presidio del Norte, August; *Bigelow*.

ACACIA TEPHROLOBA, *Gray, l. c. p*. 65. Hills on the San Pedro or Devil's river, September; (in fruit;) *Bigelow*.

Acacia Coulteri, *Benth. l. c.; Gray, Pl. Wright.* 2, *p.* 53. Eagle Pass and plains, and plains near Zoquete Creek; *Bigelow.*

Acacia flexicaulis, *Benth.; Gray, l. c.* 1, *p.* 65, *adnot.* Monterey, Neuvo Leon, &c.; *Thurber.* This is clearly the same as Gregg's plant.

Acacia cuspidata, *Schlecht. in Linnæa,* 12, *p.* 513; *Gray, Pl. Wright.* 1, *p.* 66. A. hirta, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 404. A. Texensis, *Torr. & Gray, l. c.* Plains and dry places along the Rio Grande, and in New Mexico; also in Sonora; June—October. After a careful comparison of numerous specimens of the first and last species here quoted with an original specimen of A. Texensis, I unite the whole without hesitation.

Acacia constricta, *Benth. in Gray, Pl. Wright.* 1, *p.* 64. Hills along the Rio Grande, from El Paso to the Presidio del Norte; also near Tascata, and in Sonora; May—July. Sometimes the leaves have only 1 or 2 pairs of pinnæ; but such occur chiefly on very short branches or spurs. The leaves and young branches are strongly pubescent in specimens collected near the Presidio del Norte by Dr. Parry.

Acacia Schottii (n. sp.:) glabra; spinis stipularibus subulatis rectis; foliis fasciculatis unijugis; foliolis 3—5-jugis filiformi-linearibus alternis; legumine lineari complanato toruloso curvato, valvulis coriaceis. Near the Cañon of San Carlos, at the Comanche Crossing of the Rio Grande, September, (in fruit): *Parry.* Branches flexuous terete. Petiole below the fork one-third of an inch long. Pinnæ an inch in length. Leaflets 2 lines long, and scarcely $\frac{1}{3}$ of a line wide, thick. Spines 2—3 lines long. Peduncles slightly bracteate in the middle. Stamens very numerous. Legume 2—3 inches long, and $\frac{1}{4}$ of an inch wide, elevated on a short stipe, 6—9-seeded, curved into a semi-circle, or even a nearly complete circle. This is a very distinct species, but seems to be allied to A. constricta.

Acacia Farnesiana, *Willd.* A. Cavenia. *Hook. & Arn. Bot. Beechey, p.* 21; *Benth. Mimos. in Hook. Lond. Jour. Bot. l. c.* Common on the boundary from Texas to California.

"Acacia tortuosa, *Willd. Sp.* 4, *p.* 1083, *Benth. Mimos. in Hook. Lond. Jour. Bot.* 1, *p.* 392. A. albida. *Lindl. Bot. Reg. t.* 1317. Vachellia Lindheimeri seu minor. *Engelm. MS. in herb. Gray.* Plains near Eagle Pass on the Rio Grande, and on hill sides, Santa Rosa, Chihuahua: *Bigelow.* Tamaulipas; *Berlandier.* In flower this species is readily mistaken for A. Farnesiana; but Dr. Engelmann had distinguished it even in that state. Flowering specimens have been confounded with A. Cavenia, which is only A. Farnesiana. The present species is well distinguished by its pod, which is elongated-linear, 3 to 5 inches long, narrow, nearly terete, moniliform, fleshy, and minutely tomentose; seeds uniserial, compressed, black. The corolla is longer than in A. Farnesiana. The heads and peduncles are nearly glabrous in our specimens."—*A. Gray.*

Acacia? crassifolium, *Gray, Pl. Thurb. p.* 317. La Peña, Cohahuila; *Dr. Edwards, Thurber.*

Pithecolobium brevifolium, *Benth. in Gray, Pl. Wright.* 1, *p.* 67. Rocky hills around the silver mines of Santa Rosa, Coahuila. January, (with fruit of the preceding season;) *Bigelow.*

ROSACEÆ.

Prunus (Cerasus) Virginiana, *Linn. Sp.* 1, *p.* 473. Dry ravines near Camp Bache, New Mexico, and at the Copper Mines; July; in fruit.

Prunus Capollin, *DC. Prodr.* 2, *p.* 539, (sub Ceraso;) *Gray, Pl. Wright.* 2, *p.* 544. Sides of the Limpio mountain, Texas: *Bigelow.* Sierra del Pajaritos, &c., Sonora; *Schott, Capt. E. K. Smith.*

Prunus demissa, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 411, (sub Ceraso.) On the mountains east of San Diego, California, June, in flower; *Parry.* A shrub seldom more than from 4 to 8 feet high.

Prunus ilicifolia, *Nutt. l. c.* (sub Ceraso,) *& N. Amer. Sylv.* 2, *p.* 16, *t.* 47; *Hook. & Arn. Bot. Beechey, p.* 340, *t.* 83. Near San Diego, and in other parts of California, May; *Parry, Thurber.* This ornamental species seldom attains a greater height than 8 or 10 feet. The pulp of the fruit is flesh color and rather thin, but palatable.

Prunus subcordata, *Benth. Pl. Hartw. p.* 308. Eastern slope of the Cordilleras of California, and near San Felipe. A straggling bush 4 to 5 feet high. Fruit sub-globose, half an inch in diameter, the pulp thin and disposed to separate into two valves.

Prunus minutiflora, *Engelm. in Pl. Lindh.* 2. *p.* 185 (sub Pruno); *Gray, Pl Wright.* 1, *p.* 68. Gravelly places and ravines between Devil's River and the Rio Grande; also in Chihuahua; *Parry, Bigelow.*

Nuttallia cerasiformis, *Torr. & Gray, in Bot. Beechey, p.* 336, *t.* 82, *& Fl.* 1, *p.* 412 Napa county, California, March—April; *Thurber.* San Luis Obispo, in the same State; the most southern station of this plant that has come to our knowledge.

Spiræa ariæfolia, *Smith, in Rees Cyclop.; Torr. & Gray, Fl.* 1, *p.* 416. Monterey, California, May; *Parry.*

Spiræa dumosa, *Nutt. in Hook. Lond. Jour. Bot.* 6, *p.* 217; *Torr. in Stansb. Rep. p.* 387, *t.* 4 Mountains near the Copper Mines, New Mexico, May, in flower, and August, in fruit; *Bigelow.*

Spiræa cæspitosa, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 418. Sides of steep and almost inaccessible rocks on the Rio Grande, about 25 miles below El Paso, in Chihuahua, June; *Bigelow.*

Cercocarpus parvifolius, *Nutt. l. c. p.* 427; *Hook. Ic. t.* 323. C. betulifolius, *Nutt. l. c.* Valley of the Upper Rio Grande, and westward to California. Flowers in May and June, fruit matures in September. The limb of the calyx early breaks away from the tube, and is carried up, with the petals and stamens, on the elongated style, and sometimes remains there until the fruit is considerably grown.

Cowania Mexicana, *D. Don in Linn. Trans.* 14, *p.* 574, *t.* 22. C. Stansburyana, *Torr. in Stansb. Rep. p.* 386, *t.* 3. In various parts of Sonora and western New Mexico, April—June. My extensive series of specimens show that the two species here brought together are connected by intermediate forms.

Cowania ariæfolia, *Torr. in Gray, Pl. Wright.* 2, *p.* 107. Crevices of calcareous rock on the Rio Grande above the mouth of Pecos, October, in flower and fruit; *Parry.*

Acæna pinnatifida, *Ruiz & Pav. Fl. Per.* 1, *p.* 68, *t.* 104; *Torr. & Gray, Fl p.* 430. (Tab. XIX.) Monterey, California, April; *Parry.*

Adenostoma fasciculata, *Hook. & Arn. Bot. Beechey, p.* 139 *&* 338; *t.* 30. Dry sandy hills and along the base of mountains, San Diego and Monterey, May; *Parry, Thurber.* A thickset straggling bush, 7—8 feet high.

Adenostoma sparsifolia, *Torr. in Emory's Report, p.* 140. (Tab. XX.) Western slope of the Cordilleras of California, July; *Parry.* This species was first discovered by Major Emory on the same mountains, near Warner's Pass. Dr. Parry states, in his notes, that it is a shrub from 4 to 8 feet high; but Major Emory found some of it 30 feet high. The bark is reddish, and peels off in shreds. The leaves are solitary and alternate, narrowly linear (nearly half an inch long and half a line wide) sparsely dotted (as are the branchlets) with minute roundish glands. Flowers in rather loose terminal panicles. Pedicels very short. Calyx turbinate-

campanulate, with several lanceolate bracts at the base; 10-striate, 10-toothed; the teeth very obtuse. Stamens mostly 10, the filaments inserted on the outer crenulate margin of the disk, at the summit of the calyx-tube. Ovary and style as in A. fasciculata. Fruit not known. This seems to be a very distinct species. We have never received the plant except from the station just noticed.

FALLUGIA PARADOXA, *Torr. in Emory, Rep. p.* 139, *t.* 2; *Gray Pl. Fendl. p.* 41, *& Pl. Wright.* 1, *p.* 68. Sieversia paradoxa, *D. Don.* Ravines and rocky places along the Upper Rio Grande, and near the Copper Mines, New Mexico, April—June; the fruit ripe in August.

HORKELIA CUNEATA, *Lindl. Bot. Reg. sub fol.* 1997; *Torr. & Gray, Fl.* 1, *p.* 432. Near Monterey, California, April; *Parry.*

POTENTILLA PARADOXA, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 437; *Lehm. Revis. Potent. in Nov. Act. Leopold-Cæs.* 23, (*suppl.*) *p.* 194, *t.* 62. Wet places on the Rio Grande, between El Paso and San Elceario, June, (flowers and fruit;) *Bigelow.*

POTENTILLA GLANDULOSA, *Lindl. Bot. Reg. t.* 1583; *Lehm. l. c. p.* 48. Monterey, California, May; *Parry.* Flowers ochroleucous.

POTENTILLA THURBERI, *Gray, Pl. Thurb. p.* 318; *Lehm. l. c. p.* 92. Around the Copper Mines of New Mexico, July; *Thurber, Bigelow.*

POTENTILLA ANSERINA, *Linn; Lehm. l. c. p.* 88. San Francisco and Monterey, California, April; *Thurber, Parry.*

FRAGARIA VESCA, *Linn.; Torr. & Gray, Fl.* 1, *p.* 448. Pine woods near Monterey, April; *Parry.*

FRAGARIA CHILENSIS, *Ehrh.; Torr. & Gray, l. c.* Sand-hills near San Francisco, California, April; *Parry.*

RUBUS NEO-MEXICANUS, *Gray, Pl. Wright.* 2, *p.* 55. Sides of Ben Moore, near the Copper Mines, June, in flower and fruit; *Bigelow.* The peduncles are sometimes 3-flowered. Allied to R. trilobus, *Moc. & Ses.*

RUBUS TRIVIALIS, *Mich. & Fl.* 1, *p.* 296? Moist shady places, San Luis Obispo and San Diego, California; *Parry.* Mabibi, Sonora, June; *Thurber.*

RUBUS URSINUS, *Cham. & Schlecht, in Linnæa,* 2, *p.* 11; *Torr. & Gray, Fl.* 1, *p.* 456. New Almaden, California, March—April; *Thurber.*

RUBUS NUTKANUS, *Mocino; Torr. & Gray, l. c. p.* 450. Monterey, California, May; *Parry.*

ROSA GYMNOCARPA, *Nutt. in Torr. & Gray, l. c. p.* 461. (TAB. XXI.) San Diego, California, May; *Parry.* A variety with larger leaves occurs at the same place.

ROSA BLANDA, *Ait. Kew.* (*ed.* 1) 2, *p.* 202. Moist places between the Limpia and the Rio Grande, and westward to California; April—May.

AMELANCHIER CANADENSIS var. ALNIFOLIA, *Torr. & Gray, Fl.* 1, *p.* 473. Near the Copper Mines, New Mexico; *Thurber.*

PHOTINIA ARBUTIFOLIA, *Lindl. in Linn. Trans.* 13, *p.* 103, *& Bot. Reg. t.* 491; *Torr. & Gray, l. c.* Monterey, and Cordilleras of California.

VAUQUELINIA CORYMBOSA, *Corr. in Humb. & Bonpl. Pl. Æquin.* 1, *p.* 140, *t.* 40. Spiræa Californica, *Torr. in Emory, Rep. p.* 140. Sierra Verde, Sonora, July, in flower, *Schott.* High mountains near the Gila, November, in fruit; *Maj. Emory.* Dr. Parry's specimens accord with the description and figure of Humb. & Bonpl., except that the leaves are smaller and less deeply toothed. In the plant collected by Maj. Emory, the leaves are ovate-lanceolate and serrate.

LYTHRACEÆ.

NESÆA LONGIPES, *Gray, Pl. Wright.* 1, *p.* 68. Wet places along the Rio Grande, July to October.

NESÆA SALICIFOLIA, *H. B. K. Nov. Gen. & Sp.* 6, *p.* 192. Shore of the Rio Grande, from Ringgold Barracks down to the mouth of the river, September, (in flower and fruit); *Schott.*

LYTHRUM ALATUM, *Pursh, Fl.* 1, *p.* 334; *Torr. & Gray, Fl.* 1, *p.* 482. Common along the Rio Grande and westward to Sonora, April to September.

CUPHEA WRIGHTII, *Gray, l. c. p.* 56. Between Babocomori and Santa Cruz, Sonora, September.

AMMANNIA LATIFOLIA, *Linn. Sp.* 1, *p.* 119; *Torr. & Gray, Fl.* 1, *p.* 480. Guadaloupe, Chihuahua, October; *Thurber.*

AMMANNIA WRIGHTII, *Gray, l. c. p.* 55. Wet places in valleys of the Limpio mountains, July; *Bigelow.* Margin of water holes, Sonora, September; *Thurber.*

ONAGRACEÆ.

ZAUSCHNERIA CALIFORNICA, *Presl. Rel. Hænk.* 2, *p.* 28, *t.* 52; *Torr. & Gray, Fl.* 1, *p.* 486. Sonora, September; *Thurber.*

EPILOBIUM COLORATUM, *Muhl. in Willd. Enum.* 1, *p.* 411. Between the Limpio and the Rio Grande; also at the Copper Mines, June to July; *Bigelow.* Valley of the Mimbres; *Thurber.* Cañon of Guadaloupe, Sonora, April; *Capt. E. K. Smith.*

ŒNOTHERA BIENNIS, *Linn.; Torr. & Gray, Fl.* 1, *p.* 492. Along the Rio Grande, from New Mexico to Laredo. Var. HIRSUTISSIMA, *Gray, Pl. Fendl. p.* 43. Chihuahua; *Thurber.*

ŒNOTHERA JAMESII, *Torr. & Gray, Fl.* 1, *p.* 493; *Gray, Pl. Lindh.* 2, *p.* 189. Borders of Devil's river, Texas.

ŒNOTHERA SINUATA, *Linn.; Torr. & Gray, Fl.* 1, *p.* 494. Near the Copper Mines, July; *Bigelow.*

ŒNOTHERA ALBICAULIS, *Nutt. Gen.* 1, *p.* 245; *Gray, Pl. Wright.* 1, *p.* 69 & 2, *p.* 56. Sand-hills along the upper Rio Grande, and valley of the Gila, common.

ŒNOTHERA CORONOPIFOLIA, *Torr. & Gray, Fl.* 1, *p.* 495. Banks of rivers, southern parts of New Mexico.

ŒNOTHERA ROSEA, *Ait.; DC. Prodr.* 3, *p.* 51. Valley of the Santa Cruz, Sonora, June; *Schott, Thurber.*

ŒNOTHERA MISSOURIENSIS, *Sims, Bot. Mag. t.* 1592; *Torr. & Gray, l. c. p.* 500. Valley of Devil's river, Texas, April; *Schott.*

ŒNOTHERA WRIGHTII, *Gray, Pl. Wright.* 2, *p.* 57. Rocky ravines near El Paso and Santa Barbara, April; *Bigelow, Thurber.*

ŒNOTHERA BRACHYCARPA, *Gray, Pl. Wright.* 1, *p.* 70; & 2, *p.* 57. Valley of the San Felipe, and near Frontera, western Texas, April; *Thurber, Bigelow.*

ŒNOTHERA TRILOBA, *Nutt.; Torr. & Gray, Fl.* 1, *p.* 499; *Gray, l. c.* Dry bed of Lake Gusman, northern Chihuahua, April; *Bigelow.*

ŒNOTHERA PRIMIVERIS, *Gray, Pl. Wright.* 2, *p.* 58. Sandy and gravelly places along the upper Rio Grande, and in northern New Mexico, March—April.

ŒNOTHERA MARGINATA, *Nutt., in Torr. & Gray Fl.* 1, *p.* 500. Santa Barbara, New Mexico; *Thurber.*

ŒNOTHERA SERRULATA, *Nutt.; Torr. & Gray, l. c., p.* 500. Western Texas, and in New Mexico, April to September.

Œnothera lavandulæfolia, *Torr. & Gray, l. c.* Between Eagle Springs and Van Horn's well, Texas, June; *Bigelow.*

Œnothera Hartwegi, *Benth. Pl. Hartw. p.* 1; *Gray, Pl. Wright.* 1, *p.* 72. Œ. Fendleri, *Gray, Pl. Fendl. p.* 45. On the Rio Grande and its tributaries, from El Paso to Eagle Pass; April—June.

Œnothera tubicola, *Gray, Pl. Wright.* 1, *p.* 71. Gravelly places neart he Limpio, July; *Bigelow.*

Œnothera chamænerioides, *Gray, Pl. Wright.* 2, *p.* 58. Frontera and Cook's Spring, Texas, April; *Bigelow.* San Bernardino and Santa Maria, Chihuahua, March; *Perry.*

Œnothera bistorta, *Nutt., in Torr & Gray, Fl.* 1, *p.* 508. San Pasqual, California, May; *Thurber.*

Œnothera gauræflora, *Torr. & Gray, Fl. p.* 510. Valley of the Gila, Sonora, May; *Schott.* Dry bed of a river near Monterey, California; *Dr. Andrews.*

Œnothera clavæformis, *Torr. & Frem. in Fremont's* 2 *Rep. p.* 314; *Torr. in Pacific Railroad Expl.* 5, *p.* 360. Colorado desert; *Schott.*

Œnothera cardiophylla, *Torr. l. c.* With the last; *Schott.*

Œnothera vinosa, *Lindl. Bot. Reg. t.* 1880. San Diego, California, May; *Thurber.*

Œnothera viminea, *Dougl.* With the last, May; *Thurber.*

Gaura villosa, *Torr. in Ann. Lyc. New York,* 2, *p.* 200. Mountain ravines and moist places near Rock creek, July; *Bigelow.*

Gaura Drummondii, *Torr. & Gray, Fl.* 1, *p.* 518. On the lower Rio Grande, October, (in flower and fruit) *Schott.*

Gaura suffulta, *Engelm. in Pl. Lindh.* 2, *p.* 190; *Gray, Pl. Wright.* 1, *p.* 72. Western Texas on the lower Rio Grande; *Schott.*

Gaura parviflora, *Dougl., Torr. & Gray, Fl.* 1, *p.* 519. Western Texas and New Mexico; also in the valley of the Gila, May—July.

Gaura coccinea, *Nutt., Torr. & Gray, l. c.*; *Gray, Pl. Wright.* 1, *p.* 73. Organ mountains, New Mexico, and down the valley of the Rio Grande to Eagle Pass, west to Sonora, April—July.

Stenosiphon virgatus, *Spach.*; *Monog. Onagr. Torr. & Gray, Fl.* 1, *p.* 520. Central Texas; *Thurber.*

Eulobus Californicus, *Nutt. in Torr & Gray, Fl.* 1, *p.* 515. Valley of the Gila, May; *Schott.* San Pasqual, California; *Thurber.*

Jussiæa repens, *Linn. Mant. p.* 381; *Torr. & Gray, l. c. p.* 520. Southwestern Texas and Sonora, April to October.

Ludwigia natans, *Ell. Sk.* 1, *p.* 581. Western Texas, October; *Bigelow.* Ojo Caliente, Chihuahua; *Thurber.* A form with much smaller leaves than usual, was found in the Limpio river, by *Bigelow.*

Proserpinaca palustris, *Linn. Torr. & Gray, Fl.* 1, *p.* 528. Pedro Pinta, Texas, October; *Bigelow.*

Myriophyllum heterophyllum, *Michx. Fl.* 2, *p.* 191. Ojo Caliente, Chihuahua; *Thurber.*

LOASACEÆ.

Cevallia sinuata, *Lag. Nov. Gen. & Sp. p.* 11, *t.* 1; *Gray, Pl. Wright.* 1, *p.* 74. Common on hill sides along the Rio Grande; also, in Sonora, May to October.

Petalonyx Thurberi, *Gray, Pl. Thurb. p.* 319. (Tab. XVII.) Valley of the Gila, May—June, *Thurber; Schott.*

Eucnide bartonioides, *Zucc.: Gray, Pl. Lindh.* 2, *p.* 191. Cañons of the Rio Grande below San Carlos, August—October; *Parry.* Rocky places, Howard's Springs; *Bigelow.* Ringgold Barracks; *Schott.*

Mentzelia albicaulis, *Dougl.; Torr. & Gray, Fl.* 1, *p.* 534. Rocky hills on the upper Rio Grande and its tributaries, also in Sonora, March to September. Mountains east of San Diego, California; *Parry.* The oily seeds are pounded and used by the Indians as an ingredient of their *Piñolé mantica*, a kind of cake.

Mentzelia Wrightii, *Gray, Pl. Fendl. p.* 48. Mountain ravines, Rock Creek, July; *Bigelow.* Valley of San Bernardino, Sonora, April; *Capt. E. K. Smith.*

Mentzelia multiflora, *Nutt. Pl. Gamb. p.* 180; *Gray, Pl. Wright.* 1, *p.* 74. Hill sides along the Rio Grande, from El Paso downward to Laredo, April to July.

Mentzelia oligosperma, *Nutt. in Bot. Mag. t.* 1760; *Torr. & Gray, Fl.* 1, *p.* 533. Wet ravines on the Cibolo of the Rio Grande, July; *Bigelow.*

PASSIFLORACEÆ.

Passiflora affinis, *Engelm. in Gray, Pl. Lindh.*, 2, *p.* 233. Devil's river, Texas, October (in fruit); *Bigelow.*

Passiflora tenuiloba, *Engelm. l. c. p.* 192. High prairies and hill sides, Western Texas, along the Rio Grande, September, October; *Parry, Schott.*

Passiflora fœtida, *Linn. Amœn.* 1, *p.* 228, *t.* 19; *Sp. p.* 1359. Thickets, Eagle Pass, June; *Schott.* A variety which seems to be intermediate between P. fœtida, *Cavan.* and P. hibiscifolia, *Lam.*, having the leaves of the former and the pubescence of the latter. Mr. Schott found on the Sierra del Pozo Verde, in Sonora, a form with velvety pubescence, and almost 3-parted leaves, with the divisions more or less lobed and toothed.

Passiflora Mexicana, *Juss. Ann. Mus. p.* 108; *t.* 38, *DC. Prodr.* 3, *p.* 324. Tubac, Sonora; *Thurber.* Leaves glaucous, 2-lobed below the middle, the lobes moderately diverging, 1 to $1\frac{1}{2}$ inch long from the bifurcation, marked near the base with a few round brownish glands. Flowers three-fourths of an inch in diameter, pale purple.

CUCURBITACEÆ.

Sicydium Lindheimeri, *Gray, Pl. Lindh.* 2, *p.* 194, *& Pl. Wright.* 1, *p.* 75. Presidio del Norte, July; *Parry.* Arroyos of the Limpia, *Bigelow.* Lower Rio Grande; *Schott.* Var. tenuisectum, *Gray, l. c.* Between the Leone and the Rio Grande; *Bigelow.* Mountains of Sonora; *Schott.*

Cucurbita perennis, *Gray, Pl. Lindh.* 2, *p.* 193. Plains between the Rio Grande and the Pecos, June—July; also at the Copper mines; *Bigelow.* Bottom lands of Devil's river, April to October; *Schott.* Grows in large patches; fruit the size and shape of a small orange.

Cucurbita digitata, *Gray, Pl. Wright.* 2, *p.* 60. Valleys among the mountains of Sonora, July (in flower;) *Schott.*

Apodanthera? undulata, *Gray, l. c.* Cañons of the Rio Grande, June; *Bigelow, Parry.* Santa Cruz, Sonora, June; *Schott, Thurber.* The Sonorians call the fruit of this plant *Melon de Cayota.*

Cyclanthera dissecta, *Arnott, in Hook. Jour. Bot.* 3, *p.* 280; *Gray, Pl. Wright.* 1, *p.* 75.

Alluvial borders of the Gila, May; *Schott.* Mountains and rocky places; Puerto de Paysano, Sonora, September (with flowers and young fruit); *Bigelow.*

ELATERIUM? WRIGHTII, *Gray, Pl. Wright. Fl.* 1, *p.* 61. Magdalena, Sonora, July; *Thurber.*

ELATERIUM? COULTERI, *Gray, l. c.* Hills near the Copper Mines, August, (in flower and fruit.) We fear not sufficiently distinct from the last. We have specimens which are almost equal in resemblance to both species.

CACTACEÆ.

The plants of this family, collected on the Boundary Survey, are described by Dr. Engelmann, in a separate article of this volume.

GROSSULACEÆ.

RIBES CALIFORNICUM, *Hook, & Arn.; Gray, in Bot. Whippl. Rep. p.* 88. Napa county, California, March; *Thurber.*

RIBES DIVARICATUM, *Dougl. in Hort. Trans.*, 7 *p.* 515; *Lindl. Bot. Reg. t.* 1559. In moist places, forming thick clumps, near Santa Barbara, California, March; *Parry.*

RIBES AUREUM, *Pursh, Fl.* 1, *p.* 164. Var. TENUIFLORUM. R. tenuiflorum, *Lindl. Bot. Reg. t.* 1274. Upper Rio Grande, and at the Copper Mines; also in Chihuahua and Sonora; March to April, Salinas river, California; *Parry.*

RIBES MENZIESII, *Pursh, Fl.* 2, *p.* 732. (TAB. XXIII.) Santa Barbara, California; *Parry.* A tall and handsome species.

RIBES SPECIOSUM, *Pursh, l. c.; Lindl. Bot. Reg. t.* 1557; *Torr. & Gray, Fl.* 1, *p.* 545. In ravines, from Monterey to San Diego, California, May; *Parry.* The most showy species of this genus. Its height is commonly from 6 to 8 feet.

RIBES MALVACEUM, *Smith in Rees Cyclop.; Torr. & Gray, Fl.* 1, *p.* 552. Common along the coast of California, particularly at Monterey and Santa Barbara, April; *Parry, Thurber.* A shrub with spreading branches, sometimes ten feet high. Flowers pale rose color; or in shady places, nearly white.

RIBES SANGUINEUM, *Pursh, Fl.* 1, *p.* 164; *Torr. & Gray, Fl.* 1, *p.* 551. San Pasqual, California, May; *Thurber.*

RIBES LEPTANTHUM, *Gray, Pl. Fendl. p.* 53, *& Pl. Wright.* 2, *p.* 63. Near the Copper Mines, and valley of the Mimbres, April; *Bigelow.*

CRASSULACEÆ.

SEDUM WRIGHTII, *Gray, Pl. Wright.* 1, *p.* 76. Hills and rocky places; Mount Carmel, Chihuahua, September and October; *Parry.* Mountains around the Copper Mines, and Puerto de Paysano; *Bigelow.*

SEDUM SPATHULÆFOLIUM, *Hook.; Torr. & Gray, Fl.* 1, *p.* 559. Rocky hills, Piñasquitas, California, May; *Thurber.*

SEDUM EDULE, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 560. Dry banks near the sea at San Diego, California; associated with Echeveria; *Parry.*

ECHEVERIA STRICTIFLORA, *Gray, Pl. Wright.* 1, *p.* 76. White rocks near Rock Creek, western Texas, July; *Bigelow.*

ECHEVERIA PULVERULENTA, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 560. E. farinosa, *Lindl. in Lond. Hort. Jour.* 4, *p.* 292? Coronados Islands, California, May; *Thurber.*

ECHEVERIA LANCEOLATA, *Nutt. l. c.* (TAB. XXIV.) Dry clay banks near the sea, at San Diego, California, June; *Parry*. Coronados islands; *Thurber*.

SAXIFRAGACEÆ.

SAXIFRAGA PARRYI (n. sp.): caudice subterraneo tuberoso ovato; foliis radicalibus suborbiculato-cordatis inciso-lobatis, lobis dentatis; venis subtus petiolisque pubescentibus; scapis nudis gracilibus; floribus paucis laxe paniculatis; calycibus campanulatis liberis, dentibus brevibus; petalis lanceolatis brevi unguiculatis, stylis ovario subaequalibus in fructu divergentibus. (TAB. XXV.) Dry hills near San Diego and San Luis Rey, California, November—December; *Parry*. Tuber about the size of a hazel-nut, fleshy. Leaves all radical, and withering away soon after the flowers appear, about an inch in diameter, slightly pubescent above: petiole nearly as long as the lamina. Scapes 4–8 inches high, commonly 2–4 from each tuber, a little pubescent. Flowers 4–7 in a loose panicle or cyme. Calyx marked with 10 strong dark brown nerves, the teeth triangular, rather obtuse, and about half the length of the tube. Petals white, nearly twice the length of the calyx teeth. Stamens 10; filaments subulate, the alternate ones rather shorter than the others. Carpels united below, rostrate and diverging above, pointed with the slender styles, which are as long as the beaks. Seeds dull, angularly 4-ribbed. A remarkable species, with the calyx and habit of a small Heuchera, but it is decandrous and the ovary is wholly free as well as 2-celled.

SAXIFRAGA VIRGINIENSIS, *Michx. Fl.* 1, *p.* 269? Cyme very few-flowered, but in other respects like the eastern plant. Near San Diego, California; *Parry*.

HEUCHERA MICRANTHA, *Dougl. in Bot. Reg. t.* 1302; *Torr & Gray, Fl.* 1, 579. Ravines near Monterey, California, May; *Parry*.

HEUCHERA RUBESCENS, *Torr. in Stansb. Rep. p.* 388, *t.* 5; *Gray, Pl. Wright.* 2, *p.* 63. Organ mountains, New Mexico, November, (in fruit;) *Bigelow*.

HEUCHERA PARVIFOLIA, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 581, *Gray, l. c. p.* 64. Copper Mines, New Mexico, August; *Bigelow*.

LITHOPHRAGMA CYMBALARIÆ, *Torr. & Gray, Fl.* 1, *p.* 585. Shady ravines near Santa Barbara, California, March; *Parry*.

LITHOPHRAGMA HETEROPHYLLA, *Hook. & Arn.; Torr. & Gray. l. c.* Near Monterey, California, March—May; *Parry*. Napa Valley; *Thurber*.

LEPUROPETALON SPATHULATUM, *Ell. Sk.* 1, *p.* 370; *Torr. & Gray, l. c. p.* 390. Santa Cruz, Sonora, March; *Parry*.

FENDLERA RUPICOLA, *Engelm. & Gray, Pl. Wright. p.* 77, *t.* 5. Organ mountains, New Mexico, and rocky places along the Rio Grande, down to the Presidio, March—May.

PHILADELPHUS SERPYLLIFOLIUS, *Gray, Pl. Wright.* 1, *p.* 77. Mountains and rocky places on the Rio Limpio, Texas, and at the Copper Mines, June—July; *Bigelow*. Sonora, April; *Capt. E. K. Smith*.

UMBELLIFERÆ.

HYDROCOTYLE UMBELLATA, *Linn. Sp. p.* 234; *Torr. & Gray, Fl.* 1, *p.* 599. Rio San Antonio, Texas: *Schott*. Devil's river, September; *Bigelow*. Bachuachi, Sonora, June; *Thurber*.

HYDROCOTYLE NATANS, *Cyrill.; Torr. & Gray, l. c.* C. prolifera, *Kellogg, Proc. Calif. Acad. Nat. Sc.* 1, *p.* 15. Borders of brooks, Monterey, &c., California; *Parry*.

HYDROCOTYLE RANUNCULOIDES, *Linn. f.*; *Torr. & Gray. l. c.* Fronteras, Sonora, May; *Thurber*.

Bowlesii lobata, *Ruiz & Pav.*; *Torr. & Gray, l. c. p.* 601. Moist shady places, near San Diego and Monterey, California; March—April; and on the Rio Gila; *Parry.*

Sanicula Menziesii, *Hook. & Arn. Bot. Beechey, p.* 347; *Torr & Gray, l. c. p.* 602. Ravines near Monterey, California, April; *Parry.*

Sanicula bipinnatifida, *Dougl. in Hook. Fl. Bor.-Am.* 1, *p.* 258, *t.* 92. White Oak plains north of San Luis Obispo, and in other parts of California, March—April; *Parry.*

Sanicula laciniata, *Hook. & Arn. Bot. Beech. p.* 347. S. nudicaulis, *Hook. & Arn. l. c.* Monterey, California; *Parry.*

Sanicula arctopoides, *Hook. & Arn. l. c.*; *Hook. Fl. Bor.-Am.* 1, *p.* 258, *t.* 91. Monterey, California, April; *Parry.*

Eryngium Leavenworthii, *Torr. & Gray, Fl.* 1, *p.* 604. Plains and rocky places between Devil's river and the Rio Grande, September; *Bigelow.* Piedras Pintas, western Texas; *Schott.*

Eryngium Wrightii, *Gray, Pl. Wright.* 1, *p.* 78. Western Texas, on the Rio Grande, June; *Schott, Bigelow.* Sonora, June—September; *Thurber, Capt. E. K. Smith.*

Eryngium diffusum, *Torr. in Ann. Lyc. N. York,* 2, *p.* 207, *& in Marcy Rep. p.* 286, *t.* 6. On the lower Rio Grande, May; *Schott.*

Berula angustifolia, *Koch; Gray, Pl. Fendl. p.* 55, *& Pl. Wright,* 2, *p.* 65. Marshes of the Limpio, Texas; and at the Copper Mines, July, (in flower and fruit;) *Bigelow.* Tucson, Sonora, May; *Schott.*

Leptocaulis echinatus, *Nutt. in DC. Prodr.* 4, *p.* 107; *Torr. & Gray, Fl.* 1, *p.* 609. Plains between Fort Fillmore and the Organ mountains, and mountains near Lake Santa Maria, Chihuahua, April; *Bigelow.* On the lower Rio Grande; *Schott.* Sonora; *Parry.*

Cicuta maculata, *Linn.; Torr. & Gray, Fl.* 1, *p.* 610. Shady moist places on the Limpio and Mimbres, July; *Bigelow, Thurber.*

Daucosma laciniatum, *Engelm. & Gray, Pl.* 2, *p.* 210. Western Texas, October, (in fruit;) *Thurber.* Copper Mines; *Bigelow.*

Cymopterus montanus, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 624; *Gray, Pl. Fendl. p.* 56; *& Pl. Wright.* 1, *p.* 79.

Cymopterus Fendleri, *Gray, Pl. Fendl. p.* 57? On the upper Rio Grande, Texas, and Chihuahua; *Bigelow, Parry.*

Thaspium? montanum, *Gray, Pl. Fendl. p.* 57, var. tenuifolium, *Gray, Pl. Wright.* 2, *p.* 65. At the Copper Mines, New Mexico, June, (in flower;) *Bigelow.*

Peucedanum dasycarpum, *Torr. & Gray, Fl.* 1, *p.* 628. Southern California: the particular station not recorded; *Parry.* The fruit is nearly twice as large as in Douglas' original specimen, but in other respects his plant resembles ours.

Peucedanum parvifolium, *Torr. & Gray, l. c.* Pine woods near Monterey, California, April (in flower, and with nearly mature fruit); *Parry.* Specimens from the same place, collected by Major Wm. Rich, have ripe fruit, which is nearly orbicular, from the unusual breadth of the winged margins.

Peucedanum fœniculaceum, *Nutt. in Torr. & Gray, l. c.?* San Luis Rey, California; *Parry.* We cannot be certain of the species, for want of the fruit. The divisions of the leaves are broader than in the ordinary forms of this species.

Deweya arguta, *Torr. & Gray, l. c. p.* 641. Near Santa Barbara; *Parry.* (Tab. XXVI.)

Euryptera lucida, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 629. (Tab. XXVII.) Gravelly hills north of San Diego, California, March; *Parry.*

HERACLEUM LANATUM, *Michx. Fl.* 1, *p.* 166; *Torr. & Gray, l. c. p.* 632. Borders of rivulets near Monterey, California, May, (in flower); *Parry.*

DAUCUS PUSILLUS, *Michx.* var. SCABER, *Torr. & Gray, l. c. p.* 636.

OSMORHIZA OCCIDENTALIS, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 639. Pine woods, Monterey, California; *Parry.*

OSMORRHIZA BRACHYPODA, *Torr. in Jour. Acad. Nat. Sc. Phil. n. ser.* 2, *p.* 79. *Torr. Pl. Whippl. p.* 93. With the last; *Parry.*

APIASTRUM ANGUSTIFOLIUM, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 644. (TAB. XXVIII.) Dry grassy hills, San Luis Rey, California; *Parry.*

CORNACEÆ.

CORNUS PUBESCENS, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 652 (sub var. C. sericea,) & *Sylv.* 3, *p.* 54. *Torr. in Bot. Whippl. Rep. p.* 95. San Luis Obispo and San Luis Rey, California; *Parry.* A shrub 10 to 12 feet high.

CORNUS NUTTALLII, *Audubon, Birds of Amer. t.* 367; *Torr. & Gray, l. c.; Nutt. Sylv.* 3, *p.* 51, *t.* 97. Monterey, California; *Parry.*

CAPRIFOLIACEÆ.

LONICERA DUMOSA, *Gray, Pl. Wright.* 2, *p.* 66. Hills at the Copper Mines, New Mexico; June, (in flower); and on the Limpio, July, (in fruit); *Bigelow.* Hills near the Mimbres, May; *Thurber.* Santa Cruz mountains; Sonora; *Capt. E. K. Smith.* "A luxuriant vine." Corolla pale greenish yellow, ringent, about three-fourths of an inch long, the tube slender, not gibbous. Filaments smooth, except at the base. Style hairy. Except in the pubescence I see little to distinguish this from L. albiflora.

LONICERA INVOLUCRATA, *Banks; Torr. & Gray, Fl.* 2, *p.* 9. Monterey and other parts of California, April; *Parry, Thurber.* Stem 6 to 8 feet long, usually reclining on other plants. Leaves somewhat persistent. Flowers red and orange. Berries black.

LONICERA SUBSPICATA, *Hook. & Arn. Bot. Beechey, p.* 349; *Torr. & Gray, l. c.* (TAB. XXIX.) Bushy places on the mountains east of San Diego, California, June; *Parry.* Plant 3 to 4 feet high. Flowers yellowish.

SYMPHORICARPUS MOLLIS, *Nutt. in Torr. & Gray, Fl.* 2, *p.* 4. Woods near Monterey, California, April; *Parry.*

SYMPHORICARPUS ROTUNDIFOLIUS, *Gray, Pl. Wright.* 2, *p.* 66. Organ mountains, New Mexico; *Parry.* Hills at the Copper Mines, August, (flowers and fruit); *Bigelow.* A form with perfectly smooth and glaucous leaves was found near the Mimbres by Dr. Bigelow.

SAMBUCUS GLAUCA, *Nutt. in Torr. & Gray, Fl.* 2, *p.* 13. Var. foliis anguste lanceolatis, *Gray, Pl. Wright. l. c.* Sides of Ben Moore, near the Copper Mines, June; *Bigelow.* Not very distinct from the next.

SAMBUCUS MEXICANA, *Presl; DC. Prodr.* 4, *p.* 323; *Gray, Pl. Wright. l. c.* Banks of the Rio Grande, near El Paso, where it becomes a low tree, 12 inches in diameter at the base; *Bigelow.* Near Monterey, California, sometimes 25 feet high, August; *Parry.* Mabibi, Sonora; *Thurber.*

RUBIACEÆ.

Galium Aparine, *Linn. Sp. p.* 108. Sonora, June; *Thurber.*

Galium asperimum, *Gray, Pl. Fendl. p.* 60. Wet ravines, Organ mountains, New Mexico, April; *Bigelow.* Annual. Leaves 6 to 8 in a whorl. Not very distinct from G. Aparine.

Galium Californicum, *Hook. & Arn. Bot. Beech. p.* 349; *Torr. & Gray, Fl.* 2, *p.* 20. Pine woods near Monterey, California; *Parry.*

Galium proliferum, *Gray, Pl. Wright.* 2, *p.* 67. Rocky hills, El Paso, April.

Galium microphyllum, *Gray, Pl. Wright.* 1, *p.* 81. Rocky places and sides of mountains along the upper Rio Grande, and at the Copper Mines, April.

Galium suffruticosum, *Nutt. in Torr. & Gray, Fl.* 2, *p.* 21. San Diego, California; *Thurber.*

Galium Wrightii, *Gray, Pl. Wright.* 1, *p.* 80. Burro mountains, and Mountains of Muerte; also on the Rio Grande, 70 miles below El Paso. The upper leaves, and sometimes the lower also, are merely scabrous, and not hairy.

Cephalanthus occidentalis, *Linn.; Torr. & Gray, Fl.* 2, *p.* 31. Valley of the Rio Grande and westward to California, June—August.

Bouvardia hirtella, *H. B. K. Nov. Gen. & Sp.* 3, *p.* 384; *Gray, Pl. Wright.* 1, *p.* 80. Cañons of the Rio Grande, June—July; *Parry, Bigelow.*

Oldenlandia angustifolia, *Gray, Pl. Wright.* 2, *p.* 68. Rocky places along the Rio Grande and its tributaries, from El Paso downward, June—August Sonora; *Thurber.* An extremely variable species.

Oldenlandia acerosa, *Gray, Pl. Wright. l. c.* Hedyotis acerosa, *Gray, Pl. Wright.* 1, *p.* 81. Dry hill-sides, Devil's river and along the Rio Grande, September—October.

Oldenlandia rubra, *Gray, l. c.* Hedyotis rubra, *Cavan.* Hills at the Copper Mines, June; *Bigelow.*

Oldenlandia humifusa, *Gray, l. c.* Hedyotis humifusa, *Gray, Pl. Lindh.* 2, *p.* 216. Sand hills, Western Texas; *Bigelow.*

Diodia teres, *Walt. Fl. Car. p.* 87; *Torr. & Gray, Fl.* 2, *p.* 29. On the lower Rio Grande; *Schott.*

VALERIANACEÆ.

Valeriana sylvatica, *Richards. App. Frankl. Journ. ed.* 2, *p.* 2; *Torr. & Gray, Fl.* 2, *p.* 47. Hills at the Copper Mines, April, May; *Bigelow.*

Valeriana edulis, *Nutt. in Torr. & Gray, Fl. l. c.; Gray, Pl. Fendl. p.* 61. V. ciliata, *Torr. & Gray, l. c.* Six miles west of the Copper Mines, April, May; *Bigelow.*

Plectritis congesta, *Lindl.; DC. Prodr.* 4, *p.* 631. Monterey and east of San Diego, California, April; *Parry.*

COMPOSITAE, (by A. Gray.)

Vernonia Jamesii, *Torr. & Gray, Fl.* 2, *p.* 58; *Gray, pl. Wright*, 1, *p.* 82, *&* 2, *p.* 69; *& in Bot. Whipp. Rep. R. R. Surv. p.* 95. Common in western Texas.

Vernonia Lindheimeri, *Gray & Engelm., Pl. Lindh.* 2, *p.* 217. Southern Texas.

Pectis angustifolia, *Torr. in Ann. Lyc.*; *Gray, Pl. Wright, l. c., etc.* Pectidopsis angustifolia, *DC.* Dry hills, western Texas to the Copper Mines, New Mexico, etc., and south to the Rio Grande. According to Mr. Thurber, the fresh plant exhales the odor of lemon balm.

Pectis filipes, *Harv. & Gray, in Pl. Fendl. p.* 62; *Gray, Pl. Wright*, 2, *p.* 69. Gathered by all the collectors; apparently common from the Rio Grande to Chihuahua and western Sonora.

Pectis papposa, *Harv. & Gray, l. c.* This has now been traced nearly across the continent, from Presidio del Norte (*Bigelow, Parry, etc.*) to the Gila and Cocospera, (*Schott, Thurber, etc.*)

Pectis longipes, *Gray, Pl. Wright*, 2, *p.* 70. Santa Cruz, Sonora, and vicinity; found by all the collectors. Berlandier collected it in Nuevo Leon; it is No. 3159 of my distribution of his *reliquiæ.*

Pectis imberbis, *Gray, l. c.* Besides Wright's specimens, gathered on the Sonoita, Sonora, from which this remarkable species was characterized, it was also found at Janos, Chihuahua, and elsewhere by Schott.

Pectis prostrata, *Cav.; Gray, Pl. Wright*, 1, *p.* 83. New Mexico and Sonora; *Wright, Thurber.*

Pectis tenella, *DC. Prodr.* 5, *p.* 99. Rio Coleto, Texas, *Thurber.* It was gathered by Berlandier at Laredo, and between the Rio Grande and the Nueces, and is No. 599, 985, 2009, and 2415 of the American distribution.*

Isocarpha oppositifolia, *R. Br.; DC. Prodr.* 5, *p.* 107. On the lower Rio Grande; *Schott, etc.* A congener of Dunantia, *DC.*, as Mr. Bentham has shown, (in *Bot. Voy. Sulphur.*) He has indicated the practical difficulties in the nomenclature of the two genera.

Trichocoronis rivularis, *Gray, Pl. Fendl. p.* 56. Piedra Pinta Creek, Texas. *Wright, Parry.*

Stevia canescens, *Benth. Pl. Hartw. p.* 19 (an *H. B. K?*) *Gray, Pl. Wright*, 2, *p.* 71. A smoothish form, gathered both in New Mexico and Santa Cruz, Sonora, by *Wright & Thurber.*

Stevia salicifolia, *Cav. Ic. t.* 354.; Lower Rio Grande; *Parry.* Pappus either 1–2-aristate, or else short and awnless, where it apparently passes into S. angustifolia, *H. B. K.*

Stevia micrantha, *Lag. Nov. Gen. & Sp. p.* 27. S. macella, *Gray, Pl. Wright*, 2, *p.* 70. Cobre (Copper Mines,) New Mexico; *Wright.* This being the same as a plant collected by Schaffner on Chepultepec, and kindly communicated to me by Dr. Schultz, the distinguished investigator of Compositæ, under the name of S. micrantha, I do not hesitate to restore that name, although the specimens do not altogether accord with Lagasca's brief character.†

*Pectis Berlandieri, *DC. l. c.* (between Tantoyuca and Tampico, 732, 2152; San Fernando, Cohahuila, 1537, 3037, *Berlandier.*) has not yet been re-discovered. The setae of the pappus, both of the disk and ray, vary from three to six.

† In the portion of the collections of Berlandier, until now undistributed, occurs the following:

Stevia Berlandieri (sp. nov.): fruticosa, fere glabra; foliis oppositis ovatis obovatisve obtusis in petiolum longum contractis basi triplinerviis crenato-subserratis crassiusculis, summis parvis spathulatis integerrimis; corymbo polycephalo pedunculato; capitulis brevissime pedicellatis capitato-congestis; involucri squamis atomiferis subacutis; acheniis glaberrimis; pappo exaristato e squamis truncatis laceris coroniformi-subconcretis.

In the mountains near San Carlos, Tamaulipas; Berlandier, No. 3160. Mountains near Saltillo; *Gregg*, No. 224. Suffruticose, a foot or two high, leaves half an inch to an inch long, with a petiole of $1\frac{1}{2}$—6 lines in length, smooth and glabrous, nearly veinless except the triple ribs at the base. Heads $3\frac{1}{2}$ or 4 lines long, including the flesh-colored or whitish corolla.

Carphochaete Bigelovii, *Gray, Pl. Wright*, 1, *p.* 89, 2, *p.* 71. New Mexico to Santa Cruz, Sonora; *Bigelow, Wright, Parry.* Sierra San Luis; *E. K. Smith.*

Carminatia tenuiflora, *DC. Prodr.* 7, *p.* 267; *Deless. Ic. Sel.* 4, *t.* 99; *Gray, l. c.* Copper Mines to Western Sonora.

Kuhnia eupatorioides, *Linn.* Narrow leaved forms, mostly var. gracillima, which abounds in New Mexico and Sonora, extends far into Mexico, and perhaps is K. rosmarinifolia.

Liatris punctata, *Hook. Fl. Bor.-Am.* 1, *p.* 306, *t.* 105. L. mucronata, *DC.* Mountains of the Limpia, and Salveto Creek, Texas; *Bigelow, Parry.*

Carphephorus junceus, *Benth. Bot. Sulph., p.* 21. Diluvial banks of the Colorado of the West, in dry and sandy beds of ravines; *Schott.*

PEUCEPHYLLUM, Nov. Gen. Eupatoriacearum.

Capitulum pluri-(10–16)-florum. Involucrum circiter 12-phyllum, disco brevius, laxum; phyllis vix biseriatis lineari-subulatis, inferne carinato-concavis margine tenuiter scariosis, superne foliiformibus. Receptaculum planum nudum. Corollæ longe cylindricæ, fauce non ampliatæ, 5-dentatæ, dentibus ovatis patentibus. Styli rami lineares, plano-convexi, obtusissimi, prorsus minutim glandulosi. Achenia haud matura subturbinata, teretia, hirsutissima. Pappus capillaris, setis rigidulis pluriserialibus valde inaequalibus denticulatis, longioribus corollam subaequantibus. Fruticulus ramosus, glanduloso-viscidulus; ramis monocephalis usque ad apicem foliosis; foliis acerosis punctatis alternis; floribus lutescentibus.

Peucephyllum Schottii.—Diluvial banks of the Colorado, in Sonora; February; *Schott.* Stems a span high, loosely branched. Leaves crowded, an inch or less in length, filiform, obtuse, glabrous, but glandular when young and more or less glutinous, strongly glandular-punctate. Head cylindraceous, half an inch long. Scales of the involucre obscurely one-nerved, the alternate and exterior ones rather smaller than the others. Corolla glandular at the summit. I know of no published genus to which this manifestly Eupatoriaceous plant is particularly allied. The name alludes to the acerose, fir-like foliage.

Brickellia oliganthes, *Gray, Pl. Wright*, 1, *p.* 84, & 2, *p.* 71. Santa Cruz, Sonora; *Wright, Thurber.*

Brickellia veronicæfolia, *Gray, l. c.* Sonora; *Schott;* the habitat not recorded. This is an abundant species in Northern Mexico. It is distributed under eight different numbers in Berlandier's collection.

Brickellia laciniata, *Gray, Pl. Wright*, 1, *p.* 87. Bachimba; *Thurber.* Organ mountains; *Bigelow.* On the Rio Grande; *Parry.* Dr. Schultz, in Seemann's *Botany of the Herald*, p. 301, has applied to this species the name of B. dentata, *Schultz, mss.*, supposing it to be De Candolle's Clavigera dentata, having overlooked my statement, in *Pl. Wright*, 1, p. 83, that the plant of De Candolle is B. Riddellii, and that the present species was not described in De Candolle's Prodomus. It is 1365 and 1783 of Berlandier's collection.

Brickellia simplex, *Gray, Pl. Wright*, 2 *p.* 73. Babocomori to Santa Cruz, Sonora. At Bufotillo Ranch, Dr. Bigelow gathered specimens of a Brickellia with the foliage of B. simplex, and with a similar involucre, but the heads are small and more numerous.

Brickellia Wislizeni, *Gray, Pl. Fendl. p.* 64, & *Pl. Wright, l. c.;* Santa Cruz; Sonora; *Bigelow, Wright, &c.*

Brickellia betonicæfolia, *Gray, Pl. Wright*, 2, *p.* 72. Cobre, etc., New Mexico; *Wright, Bigelow;* var. humilis. Between Babocomori and Santa Cruz, Sonora; *Thurber, Wright.*

Brickellia cylindracea, *Gray, Pl. Lindh.* 2, *p.* 218, *& Pl. Wright, l. c.* Western Texas, the Rio Grande near Eagle Pass, etc.; *Bigelow, Parry.*

Brickellia Riddellii, *Gray, l. c.* Southern and western Texas, where it abounds.

Brickellia Wrightii, *Gray, Pl. Wright*, 2, *p.* 72. Cobre, etc., New Mexico; *Wright.* Santa Cruz, Sonora; *Thurber.*

Brickellia tenera, *Gray, l. c.* Near Santa Cruz, Sonora, in a mountain ravine; *Wright.*

Brickellia floribunda, *Gray, l. c.* With the last, and also on the San Pedro, Sonora; *Wright.*

Brickellia reniformis, *Gray, Pl. Wright*, 1, *p.* 86. Punto de Peysano; *Bigelow.*

Brickellia baccharidea, *Gray, l. c.* Cobre, New Mexico; *Bigelow.*

Brickellia grandiflora, *Nutt.*; *Torr. & Gray, Fl. l. c.* Cobre, New Mexico; *Bigelow, Wright.*

Eupatorium Parryi (sp. nov): glanduloso-hirsutum, ramosum; foliis alternis nunc oppositis cordatis acutis grosse inciso-crenatis membranaceis subtriplinerviis venosis; petiolo elongato marginato; corymbis circiter 5-cephalis; pedunculis gracilibus; capitulis circiter 20-floris cylindraceis, squamis imbricatis triseriatis lanceolatis striatis aristato-acuminatis extus pubescentibus; acheniis ad angulos hirtellis.—Sierra de Carmel, near the Rio Grande, Chihuahua; October; *Parry.* Branches of an herbaceous species, apparently of a diffuse habit, which has the involucre and habit of a *Brickellia* (but the achenia are pentangular without intermediate striæ,) or of an *Ooclinium*, but the receptacle is flat. Leaves about an inch in length and breadth, deltoid-cordate, beset with a sparse and short pubescense or glabrate. Petioles 6 to 8 lines long, with narrow decurrent margins, hirsute with glandular or viscid hairs, like the stem, peduncles, etc. Peduncles minutely bracteolate. Heads half an inch long. Scales of the involucre green, lucid, appressed, strongly striate, tapering, especially the inner ones, into a slender short awn. Flowers apparently ochroleucous. Achenia 2 lines long, with a conspicuous basilar callus, slender. Pappus white, scabrous.

Eupatorium Bigelovii (sp. nov): cinereo-pubescens, ramosum; foliis oppositis ovato-lanceolatis acutis integerrimis breviter petiolatis a basi rotundata tri-quinquenervatis supra glabratis subtus tomentosis; capitulis ternis quinisve ad apicem ramulosum brevi-pedicellatis 20–30-floris; involucro turbinato cinereo-tomentoso; squamis pluriseriatim imbricatis striatis, acutis, exterioribus ovatis oblongisve, interioribus lanceolatis seu linearibus purpurascentibus; acheniis secus angulos scabridis.—On the Gila, Sonora; *Parry.* Apparently an upright herbaceous plant, also with much the aspect of a Brickellia, but with the characters of Eupatorium. Leaves 2 or 3 inches long, thin, the larger an inch or more in width near the base, thence tapering to an acute point. Petioles 3 lines long. Heads half an inch long. Scales of the turbinate and tomentose involucre rather loosely imbricated in 5 or 6 series, the exterior successively shorter and broader. Flowers purplish. Pappus tinged with purple or brownish. Achenia a line and a half long.*

* Eupatorium spinaciæfolium is the name which must apparently be borne by Bulbostylis spinaciæfolia, *DC. Prodr.* 5, *p.* 139, since it has pentagonal achenia and is a true Eupatorium. The species is founded on Berlandier's Nos. 764 and 2184 (Amer. distrib.) My specimens have only upper leaves, few of which are much hastate.

EUPATORIUM SCHIEDEANUM, *Schrad.*; *DC. Prodr.* 5, *p.* 159. (E. multinerve, *Benth.* E. Schiedeanoides, *Schultz, Bip.*:) var. GROSSE-DENTATUM. E. Sonorae, *Gray, Pl. Wright,* 2, *p.* 74. Mountain ravine near Santa Cruz, Sonora; *Wright.* Lower Rio Grande, Texas, near Ringgold's Barracks, etc.; *Schott.* The latter is a more diffuse and loosely flowered form, approaching E. paniculatum, *Schrad.*, in the inflorescence, but not in the leaves. The form with dense corymbs which comes from southern Mexico, Costa Rica, etc., Dr. Schultz has ascertained to be Lessing's E. pycnocephalum, a name not very appropriate for our forms nor for the specimens of Berlandier. The plant of the Rio Grande is said by Mr. Schott to exhale a moschate odor.

EUPATORIUM BERLANDIERI, *DC. Prodr.* 5, *p.* 167. E. ageratifolium β? Mexicanum, *DC. l. c. p.* 173. E. ageratifolium, var. Texense and var. herbaceum, *Gray Pl. Lindh. & Pl. Wright.* Various forms from southern Texas to the mountains near Santa Cruz, Sonora, (the nearly herbaceous state.) In Berlandier's *reliquiæ* distributed by me, this occurs under the numbers 762 and 2182, (between Victoria and Tula,) and 756, 2176, (between Tula and Tampico;) also from San Carlos, Tamaulipas, 3164. These all belong to one species, and the difference in the length of the pappus remarked by De Candolle is inconstant. The name of E. Berlandieri had best be retained for the species, at least until it is identified with the Cuban species.

EUPATORIUM WRIGHTII, *Gray, Pl. Wright,* 2, *p.* 87. New Mexico; *Wright.*

EUPATORIUM SOLIDAGINIFOLIUM, *Gray, l. c.* New Mexico; *Wright,* &c.

EUPATORIUM SEROTINUM, *Michx.* San Pedro river, western Texas; *Bigelow.*

EUPATORIUM CONYZOIDES, *Vahl. Symb.* 3, *p.* 96. Lower Rio Grande; *Schott.* Rocky ravines, near Santa Rosa; *Bigelow.* Mr. Trecul gathered this at the mouths of the Mississippi. De Candolle's Mexican stations are from Berlandier's collections, in which it occurs under numbers 1384, 2210, 2355, etc. The original colored drawing (in my possession) for the plate in Schrank's *Pl. Rar. Hort. Monac.*, *t.* 85, represents the flowers as white or whitish.*

CONOCLINIUM CŒLESTINUM, *DC. Prodr.* 5, *p.* 135. Rio Grande, near Laredo, *Schott.*

CONOCLINIUM BETONICUM, *DC. l. c.* Lower Rio Grande, *Schott.* A nearly glabrous form, with hastate-oblong and very obtuse leaves. Also a remarkable and doubtful form, with thin, glabrous, and entire ovate leaves from near the mouth of the Pecos. Perhaps the species, which seems to be polymorphous, likewise includes C. Hartwegi, *Walp.*, the Eupatorium Hartwegi, *Benth. Pl. Hartw.*

CONOCLINIUM DISSECTUM, *Gray, Pl. Wright,* 1, *p.* 88. From the lower Rio Grande to the borders of Sonora; found by all the collectors. It is singular that this does not occur in Berlandier's collection.

MIKANIA SCANDENS, *Linn.* Southern Texas, *Schott.* &c.

CORETHROGYNE INCANA, *Nutt.* (excl. syn.) San Diego, California; on hills; *Parry.* Probably this is no more than a state of C. Californica, without chaff on the receptacle.

CORETHROGYNE FILAGINIFOLIA, *Nutt.*; *Torr. & Gray, Fl.* 2, *p.* 98. There is a great deal of confusion in the description and synonymy of this and C. tomentella in the Flora of North

* EUPATORIUM AZUREUM, *DC. l. c. p.* 168, No. 1380 of Berlandier's colletion, was also gathered by Dr. Gregg at Monterey, in better specimens. The heads are 30–40-flowered; the corolla purplish, according to Gregg; and the leaves are broadly deltoid. The species is allied to E. deltoideum, but the leaves are not hastate, the heads are shorter and smaller, the involucre more biseriate, its outermost scales broader, and the achenia nearly glabrous.

America and elsewhere, which it is now hardly worth while to clear up in detail, since it is evident that the two really belong to one polymorphous species, which includes Bentham's C. virgata and C. obovata also. The plant has a persistent base, and blossoms at various seasons; the wool is either permanent or deciduous, etc. Should my conjecture about C. incana prove true, the known forms of the genus may be reduced to two species, C. Californica and C. filaginifolia.

MACHÆRANTHERA CANESCENS, *Gray, Pl. Wright.* 1, *p.* 89, &c. Along the boundary everywhere, from the upper part of the Rio Grande to the Gila, &c.

MACHÆRANTHERA TANACETIFOLIA, *Nees. Ast. p.* 224 ; *Gray, l. c.* From the Pecos to Sonora, etc. ; in various forms.

MACHÆRANTHERA PARVIFLORA, *Gray, l. c.* Plains and mountains, southern borders of New Mexico and adjacent parts of Sonora ; also on the Gila ; *Bigelow, Parry, Wright, Thurber.*

PSILACTIS ASTEROIDES, *Gray, Pl. Fendl. p.* 72. Along the Rio Grande, from Presidio to El Paso, etc., and in Sonora.

ASTER MULTIFLORUS, *Ait.* Common from the lower Rio Grande to the Gila, etc. A. hebecladus and A. scoparius, *DC.*, are founded on exactly the same thing in Berlandier's collections.

ASTER SIMPLEX, *Willd.* Sonora ; *Wright.* On the Mimbres, New Mexico ; *Bigelow.*

ASTER CARNEUS, *Nees.* A. cœrulescens, *DC. Prodr.* 5, *p.* 235. Western Texas ; *Thurber.* On the Pecos ; *Bigelow.*

ASTER PUNICEUS, *Linn.;* var. VIMINEUS, *Torr. & Gray.* Mimbres ; *Bigelow.* Sierra de los Animos ; *Wright.*

ASTER LONGIFOLIUS, *Lam.* On the Mimbres ; *Wright.*

ASTER NOVI-BELGII, *Linn.* Also on the Mimbres, etc.; *Wright, Bigelow.*

ASTER SPINOSUS, *Benth. Pl. Hartw. p.* 20. Along the Rio Grande, below El Paso, to its mouth.

ASTER DIVARICATUS, *Nutt.* From the lower Rio Grande to Sonora.

ASTER ANGUSTUS, *Torr. & Gray, l. c.* Sand bars of the Rio Grande, below Doña Ana ; *Wright, Bigelow.* Probably brought down the river from the Rocky mountains.

ASTER PAUCIFLORUS, *Nutt.; Gray, Pl. Wright,* 2, *p.* 76. Subsaline soil, west of the Chiricahui mountains and Santa Cruz, Sonora ; *Wright.*

ASTER BLEPHAROPHYLLUS, *Gray, Pl. Wright, l. c.* Subsaline soil, Los Playos Springs, New Mexico; *Wright.*

ASTER SONORÆ, *Gray, Pl. Wright, l. c.* In the same region as the last two species.

ASTER CHILENSIS, *Nees.;* var. *β. Torr. & Gray, Fl.* 2, *p.* 112. A. Durandi, *Nutt. in herb.* California ; *Rev. Mr. Fitch.*

ERIGERON (CŒNOTUS) CANADENSE, *Linn.* On the Gila ; *Thurber;* and doubtless almost everywhere.

ERIGERON (CŒNOTUS) ERIOPHYLLUM, *Gray, Pl. Wright,* 2, *p.* 77. On the Sonoita, Sonora; *Wright.*

ERIGERON MACRANTHUM, *Nutt.; Gray, Pl. Fendl. p.* 67, *etc.* Cobre, New Mexico; *Wright, Bigelow.*

ERIGERON DIVERGENS, *Torr. & Gray, Fl.* 2, *p.* 175*; Gray, Pl. Wright,* 2, *p.* 77 ; var. CINEREUM. W. Texas to the Gila (*Thurber*) and Tucson, Sonora; *Schott.*

ERIGERON BELLIDIASTRUM, *Nutt.; Gray, l. c.* New Mexico; *Wright.*

ERIGERON (CŒNOTUS) SUBDECURRENS? Conyza subdecurrens, *Gray, Pl. Fendl. p.* 78, *& Pl. Wrigh,* 1, *p.* 172. W. Texas (on the Pecos) to the Gila and Sonora; *Thurber.* San Luis Rey, California; *Parry.* It is very doubtful if this be De Candolle's plant, of which I found no specimens in the *reliquiæ* of Berlandier's collection.

ERIGERON GLAUCUM, *Ker.; Torr. & Gray, Fl. l. c.* Monterey, California; *Parry, etc.*

ERIGERON DOUGLASII, *Torr. & Gray, l. c.;* var. foliis angustissimis fere filiformibus. Mountains near San Diego, California; *Parry, Thurber, Schott.*

ERIGERON (POLYACTIDIUM) DELPHINIFOLIUM, *Willd.; Gray, Pl. Wright, l. c.* Cobre, New Mexico, &c.; *Wright, Bigelow, Thurber,* (a canescently hirsute variety.)

ERIGERON MODESTUM, *Gray, l. c.* Live Oak creek, Texas; *Wright.*

ERIGERON BIGELOVII (sp. nov.): cinero-hispidum; caulibus (6–8-pollicaribus) e basi lignescente ramosis adscendentibus, ramulis monocephalis; foliis linearibus spathulato-lanceolatis acutatis, inferioribus spathulatis integerrimis in petiolum attenuatis; involucro subtriseriali, squamis lineari-lanceolatis acuminatis margine scariosis dorso subglandulosis parcissime hispidis, exterioribus brevioribus; ligulis 40–50 uniserialibus purpureis; acheniis hispidis; pappo e setis hispidulis 15–16 corollam disci subæquantibus et totidem squamellato-setaceis subtriplo brevioribus. Near Fronteras, New Mexico, March, April; *Bigelow.* Also collected by Mr. Wright, but in too few specimens for distribution. The species should rank next to E. modestum; but its heads are nearly twice as large; the rays (3 lines long) purple, more imbricated; the involucre scarcely hispid, and the pappus less fragile; the exterior series longer. It is one of the species intermediate between Erigeron (Pseuderigeron) and Diplopappus.

DIPLOPAPPUS ERICOIDES, *Torr. & Gray, Fl.* 2, *p.* 182; var. HIRTELLA, *Gray, Pl. Fendl. p.* 69. Rocky places throughout New Mexico and adjacent districts.

DISTASIS MODESTA, *DC. Prodr.* 5, *p.* 279. High plateaus on the Rio Grande, Pecos, etc. On Mt. Carmel Dr. *Parry* gathered a glabrate autumnal form, with longer and rigid branches, which is somewhat peculiar.

TOWNSENDIA STRIGOSA, *Nutt.; Torr. & Gray, Fl. l. c.* El Paso, and adjacent parts of Chihuahua.

TOWNSENDIA (MEGALASTRUM) WRIGHTII: suffrutescens, viscoso-puberula; ramis adscendentibus (subpedalibus) apice nudis; foliis spathulatis integerrimis setigero-apiculatis inferne in petiolum marginatum attenuatis; involucri biserialis squamis ovato-lanceolatis longe caudato-acuminatis submarginatis extus glanduloso-puberulis; ligulis magnis; pappo in radio et disco conformi multisetoso.—Aster? (Megalastrum) Wrightii, *Gray, Pl. Wright,* 2, *p.* 75. Stony hills on the Rio Grande, 60 or 70 miles below El Paso; *Wright.* Mouth of the great cañon of the Rio Grande; *Bigelow.* This striking plant is clearly only an extreme form of Townsendia, with the pappus more copious and finer than usual.

EREMIASTRUM BELLIOIDES, *Torr. & Gray, Pl. Thurber, p.* 320; *& in Pacif. R. Road Expl.* 6, *p.* 361, *t.* 6. On the desert of the Colorado of the West; *Thurber.* Fort Yuma, etc.; *Schott.* The specimens all too young.

KEERLIA BELLIDIFOLIA, *Gray & Engelm. Pl. Lindh.* 2, *p.* 220. On the Nueces and Blanco; *Wright, Parry.*

APHANOSTEPHUS RAMOSISSIMUS, *DC.; Gray, Pl. Wright, l. c.* On the Nueces, Rio Grande, etc.

This varies greatly in foliage, etc. The following are some of the numbers under which it is distributed in Berlandier's collection: 2061, 1787, 1074, 2504, 3168, 1888, 1077, 2507.

BELLIS INTEGRIFOLIA, *Michx.* Low places on the Pecos, Limpio, etc.; *Bigelow, Wright.* The minute hairs on the achenium are glochidiate.

GYMNOSPERMA CORYMBOSUM, *DC. Prodr.* 5, *p.* 312. Along the Rio Grande. All three of De Candolle's Mexican species must be reduced to one.

GUTIERRERIA WRIGHTII, *Gray, Pl. Wright,* 2, *p.* 78. Between Babocomori and Santa Cruz, Sonora; *Wright.* Cobre; New Mexico, *Bigelow.*

GUTIERREZIA GYMNOSPERMOIDES, *Gray, l. c.* Low banks of the San Pedro, Sonora; *Wright.* Santa Maria, Chihuahua, *Thurber.*—Lower leaves often pinnatifid.

GUTIERREZIA SPHÆROCEPHALA, *Gray, Pl. Fendl. p.* 73, *& Pl. Wright, l. c.* From Indianola, Texas, to Cobre, New Mexico, and Chihuahua.

GUTIERREZIA ERIOCARPA, *Gray, Pl. Wright,* 1, *p.* 94. Along the Rio Grande. Often confounded with G. sphærocephala, and probably not really different.

GUTIERREZIA MICROCEPHALA, *Gray, l. c.* Common on the frontiers, and in Texas near the coast.

GUTIERREZIA EUTHAMIÆ, *Torr. & Gray, Fl.* 2, *p.* 123. Common in New Mexico, on the Rio Grande below El Paso, and in the northern parts of Chihuahua and Sonora. G. divaricata is only a loosely flowered variety of this, to which many of our specimens would be referred.

GUTIERREZIA TEXANA, *Torr. & Gray, l. c.* Common in the middle district of Texas.

SOLIDAGO ANGUSTA, *Torr. & Gray, l. c.* Eastern Texas; *Thurber.*

SOLIDAGO NEMORALIS, *Ait.;* var. MOLLIS. S. mollis, *Bartling; Gray, Pl. Wright,* 2, *p.* 79. S. incana, *Torr. & Gray, Fl.* 2, *p.* 221. New Mexico and western Texas, in various places; *Thurber, Bigelow, Wright, Parry.* The plant runs into S. nemoralis, and must be appended to that widely distributed species.

SOLIDAGO RADULA, *Nutt.* Southern Texas; *Parry.* Includes S. rotundifolia, *DC.* and S. scaberrima, *Torr. & Gray.*

SOLIDAGO OCCIDENTALIS, *Nutt. in Torr. & Gray, l. c.* Common on the banks of the Mimbres, New Mexico; *Wright, Bigelow.* San Luis Rey, California; *Parry.*

SOLIDAGO PETIOLARIS, *Ait.; Torr. & Gray, l. c.* Cobre, New Mexico, etc.

SOLIDAGO ELONGATA, *Nutt.; Torr. & Gray, l. c.* California; *Schott.* New Mexico; *Bigelow.*

SOLIDAGO CALIFORNICA, *Nutt.; Torr. & Gray, l. c.* Mountains east of San Diego; *Parry,* etc. Mr. Thurber gathered a Solidago, which may be a variety of this, in Chihuahua.

SOLIDAGO CANADENSIS, *Linn.* var. PROCERA, *Torr. & Gray, Fl.* Cobre, etc., New Mexico; *Bigelow.*

LINOSYRIS ARBORESCENS, (sp. nov.): glabra, viscidula; caule 10-pedali lignosa; ramis apice corymboso–polycephalis; foliis anguste linearibus acutis, ramulorum subulatis; involucro pauciseriali disco breviore 20–25-floro, squamis lanceolatis acutis carinatis margine scarioso-ciliolatis; appendicibus styli lanceolato-subulatis portionem stigmatiferum æquantibus; acheniis brevibus turgidis pubescentibus.—California; *Rev. Mr. Fitch.* The flowering branchlets in Mr. Fitch's collection are stated to belong to "a tree 10 feet high." They are slender and very leafy; the leaves are one or two inches in length, about a line wide, much like those of L. vulgaris, only a little viscid. Corymb crowded. Heads three lines long; the flowers all tubular, but occasionally a marginal one shows a tendency to become irregular, and to have its anthers abortive. Receptacle alveolate and toothed. Achenia all fertile, short-oblong,

turgid, not compressed. This is surely a congener of L. vulgaris, and no less so, perhaps, of Ericameria resinosa, *Nutt.*, the ligules of which are often imperfect. In two directions, species which I cannot separate from Linosyris make too close an approach to Aplopappus.—(*Vide Pl. Wright*, 1, p. 96, & 2, p. 81.)

LINOSYRIS (CHRYSOTHAMNUS) VISCIDIFLORA, *Torr. & Gray;* var. PANICULATA. California; *Schott.* The locality not recorded. This, with a Californian specimen gathered on the Sacramento in Wilkes' Exploring Expedition, perhaps belongs to an undescribed species; but the distinctions between it and L. viscidiflora, (a bad name,) on the one hand, and Ericameria resinosa, *Nutt.*, on the other, are not clear. Better specimens of these plants are needed for illustration.

LINOSYRIS GRAVEOLENS, *Torr. & Gray, l. c.* Cobre, New Mexico; *Bigelow.* Sierra de los Animos; *Wright.*

LINOSYRIS PULCHELLA, *Gray, Pl. Wright*, 1, *p.* 96, *&* 2, *p.* 80. Sandy banks of the Rio Grande, New Mexico; *Wright, Bigelow.* Sand hills, Chihuahua; October; *Thurber.*

LINOSYRIS WRIGHTII, *Gray, Pl. Wright*, 1, *p.* 95, *&* 2, *p.* 80. Along the Rio Grande, New Mexico, etc.; *Wright, Bigelow.* As already remarked, some forms appear to connect L. hirtella with this species.

LINOSYRIS CORONOPIFOLIA, *Gray, Pl. Wright*, 1, *p.* 96. Lower Rio Grande to Eagle Pass, Los Moros, etc.; *Schott, Parry, Bigelow.*

LINOSYRIS? CARNOSA, *Gray, Pl. Wright*, 2, *p.* 80. Subsaline soil west of the Chiricahui mountains; *Wright.* Gathered by Mr. Wright; the affinities of the plant still doubtful.

LINOSYRIS (APLODISCUS) DRUMMONDII, *Torr. & Gray, Fl.* 2, *p.* 233. Prairies between Indianola and San Antonio, Texas; *Parry.* On the lower Rio Grande; *Schott.*

LINOSYRIS (APLODISCUS) MEXICANA, *Schlecht. Hort. Hal. p.* 7, *t.* 4. Aplopappus (Aplodiscus) discoideus, *DC.* Lower Rio Grande? *Schott*, who also gathered a var. TOMENTOSA: pube laxa decidua lanata. The particular locality not recorded.

LINOSYRIS (APLODISCUS) MENZIESII, *Gray, Pl. Wright*, 1, *p.* 97. Aplopappus Menziesii, *Torr. & Gray.* San Luis Rey, San Diego, Carisso creek, &c.; *Parry, Schott*, &c. Common in dry places, growing in bunches. Dr. Hulse gathered in the valley of the Sacramento a scabrous variety of this, with the lower leaves large and obovate.

APLOPAPPUS (ERICAMERIA) ERICOIDES, *Hook. & Arn. Bot. Beech, p.* 146. California; *Schott.*

APLOPAPPUS (ERICAMERIA) LARICIFOLIUS, *Gray, Pl. Wright*, 2, *p.* 80. Guadalupe Pass, New Mexico; *Wright.* Organ mountains; *Bigelow.*

APLOPAPPUS PHYLLOCEPHALUS, *DC. Prodr.* 5, *p.* 347. A. rubiginosus, *Torr. & Gray, l. c.* Lower Rio Grande; *Schott.* The species was founded on Berlandier's No. 2278, which is a state of the species named A. rubiginosus in the Flora of North America, but just beginning to blossom, and with nearly sessile heads.

APLOPAPPUS SPINULOSUS, *DC. l. c.* Everywhere common along streams, from Texas to Sonora.

APLOPAPPUS GRACILIS, *Gray, Pl. Fendl. p.* 76. Common through New Mexico and Sonora in sandy places.

APLOPAPPUS (PRIONOPSIS) CILIATUS, *DC. Prodr.* 5, *p.* 346. Plains and alluvial banks of rivers, western and southern Texas; *Bigelow, Schott.*

XANTHISMA TEXANUM, *DC. Prodr.* 5, *p.* 94; var. BERLANDIERI, *Gray, Pl. Wright*, 1, *p.* 98. On the lower Rio Grande; *Schott.* This is the form, with very obtuse involucral scales, on which the genus was founded, viz: Berlandier's No. 2039, misprinted 2639, gathered near

Medina. Some of the specimens afterwards collected by Berlandier (distributed as Nos. 2562 and 2573) connect this with the variety Drummondii, (Centaurilium Drummondii, *Torr. & Gray.*) which has acute or cuspidate involucral scales.

GRINDELIA SQUARROSA, *Dunal.;* var. GRANDIFLORA, *Gray, Pl. Wright,* 1, *p.* 98, etc. On the Manzanal, Texas, etc. It is No. 1921 of Berlandier's collection.

GRINDELIA LANCEOLATA, *Nutt.; Torr. & Gray, l. c.* Cobre, New Mexico; *Thurber, Bigelow.* Probably a mere variety of G. squarrosa.

GRINDELIA ARGUTA, *Schrader, in DC. l. c.* Cobre cañon; *Wright, Thurber.* Probably this is likewise G. squarrosa.

GRINDELIA INULOIDES, *Willd.:* var. MICROCEPHALA. G. microcephala, *DC. Prodr.* Southern and western Texas; *Schott, Parry.* This is the same as Berlandier's plant, (No. 2057,) on which De Candolle founded his G. microcephala. The achenia are of the same shape as in G. inuloides; but their thick walls are generally smooth and even, yet some of them show traces of the corky-rugose character of those of genuine G. inuloides.

PENTACHAETA AUREA, *Nutt. in Trans. Amer. Phil. Soc.* 7, *p.* 336; *Torr. & Gray, Fl.* 2, *p.* 249. Var. β. capitulis majoribus multiradiatis.—San Luis Rey; February. Var. γ. capitulis multo minoribus; involucri squamis plerumque obtusis; ligulis 7–10.—Cordilleras, near San Felipe, California, on the eastern slope; June. The first variety is a strong vernal form, with larger heads than in my specimens from Nuttall, yet agreeing very well with his description. The second is a later, much branched state, I believe, of the same species, although the heads are only one-third as large, the rays and the involucral scales proportionally fewer, and the latter either obtuse or retuse, or merely mucronate. The pappus of this occasionally consists of 6 or 8 bristles. The comparison of both forms with Nuttall's original specimens shows that they all belong to one species.

BRADBURIA HIRTELLA, *Torr. & Gray, Fl.* 2, *p.* 250. Eagle Pass, etc., on the Rio Grande, Texas; *Schott.*

HETEROTHECA SCABRA, *DC.; Torr. & Gray, l. c.* San Antonio to Presidio del Norte, etc.; *Bigelow, Schott, Parry.* Very tall specimens were gathered at Presidio by Dr. Bigelow, growing four feet high.

HETEROTHECA FLORIBUNDA, *Benth. Bot. Voy. Sulph. p.* 24. San Luis Rey, California; October; *Parry.* This is certainly Bentham's H. floribunda, and is the same as No. 275 of Coulter's California collection, although the heads are somewhat larger. I fear it passes into H. grandiflora, *Nutt.*

CHRYSOPSIS CANESCENS, *Torr. & Gray, Fl.* 2, *p.* 256. On the Cibolo, Salado, and Limpio, Texas; *Bigelow, Schott.*

CHRYSOPSIS VILLOSA, *Nutt.* San Estaban, New Mexico; *Bigelow.*

CHRYSOPSIS FOLIOSA, *Nutt.* New Mexico, northern Sonora, etc. This and C. hispida vary greatly in appearance, and are probably to be reduced to C. villosa.

CHRYSOPSIS HISPIDA, *Hook.* Clefts of rocks between the San Pedro and Pecos; *Bigelow.*

CHRYSOPSIS PILOSA, *Nutt.* On the Rio Grande near Coleto creek; *Schott.*

LAPHAMIA HALIMIFOLIA, *Gray, Pl. Wright,* 1, *p.* 100, *t.* 9. Hills of the San Pedro; *Wright, Bigelow.*

LAPHAMIA ANGUSTIFOLIA, *Gray, l. c.* High rocky hills of the Pecos, in crevices of the limestone, and mountains near Live Oak creek; *Bigelow, Wright.* Also between San Pedro and the Puercos; *Schott.*

LAPHAMIA ANGUSTIFOLIA? var. LACINIATA: caulibus elongatis diffusis; foliis oblongis subcuneatis laciniato-lobatis.—Crevices of rocks along the Rio Grande, Texas; October; *Bigelow, Schott.* This is doubtless an autumnal state either of L. angustifolia or of L. halimifolia, with weak stems prolonged to the length of a foot. From the foliage it might as well be judged to be a state of the latter, but the rayless heads and flowers are those of the former. It seems to indicate that the two species may not really be distinct.

LAPHAMIA BISETOSA, *Torr. in Pl. Wright*, 2, *p.* 106. Limestone rocks below Mount Carmel, on the Rio Grande; October; *Parry.* Heads as large as in L. rupestris.

LAPHAMIA DISSECTA, *Torr. in Pl. Wright*, 2, *p.* 81. Crevices of limestone, cañon of San Carlos, and near Presidio del Norte, on the Rio Grande; *Parry, Bigelow.*

LAPHAMIA (PAPPOTHRIX) RUPESTRIS, *Gray, Pl. Wright*, 1, *p.* 99, *t.* 9. Crevices in basaltic rocks on the Limpio; also San Estaban, Florence mountains, Escondido creek, etc.; *Wright, Bigelow, Parry.*

LAPHAMIA (PAPPOTHRIX) CINEREA (sp. nov.): nana, lanoso-tomentulosa; caulibus subdiffusis usque ad apicem foliosis; foliis oppositis rotundis subintegerrimis parvis, adultis subglabratis; pedunculis folia paullo superantibus; acheniis sæpius 3–4-nervatis; pappo rigidio tubo corollæ vix longiore.—On rocks near Escondido creek; September; *Bigelow.* This differs from the last, possibly not specifically, in its somewhat floccose woolly pubescence, which renders all the young parts canescent, its entire or very obscurely toothed leaves, its rather longer peduncles, the longer proper tube to the corolla, its proportionally shorter pappus of stouter and more rigid bristles; and some of the achenia have four salient and unequally disposed ribs or nerves, but the greater number three, of which two are usually approximate at one margin. The leaves are from three to six lines in diameter, orbicular or broadly ovate, sometimes obscurely cordate, entire, or obsoletely repand-toothed.

PERITYLE CORONOPIFOLIA, *Gray, Pl. Wright*, 2, *p.* 82. Cobre, New Mexico; *Bigelow, Wright.* Arroyo de los Nogales, Sonora; *Schott.*

PERITYLE PARRYI, *Gray, Pl. Wright*, 2, *p.* 106. In a cañon of the Rio Grande below Mount Carmel; *Parry.*

PERITYLE AGLOSSA, *Gray, l. c.* With the preceding; *Parry.* This is an annual, not suffrutescent at the base, as stated in the published description; and the larger leaves are often two inches wide.

PERITYLE NUDA, *Torr. Mss.; Gray in Torr. Bot. Whippl. Rep. p.* 100. On the Gila, near the Pimo village; *Parry.* The rays are plainly yellow.

PERITYLE EMORYI, (*Torr. in Emory, Rep. N. Mex.* 1848, *p.* 142): ligulis ovalibus; pappo uniaristato, arista setiformi corolla breviore inferne nuda vel scabra, versus apicem parce retrorsum vel patentissime barbellata-hispida.—On the desert of the Colorado of the West; *Emory, Schott*, etc. Fort Yuma; *Major Thomas.* This plant so closely resembles P. nuda in foliage, (although the leaves are not always so much cut,) pubescence, in the size of the heads and broad scales of the involucre, in every respect, indeed, except in the awn to the pappus, (the squamellae of which are, perhaps, less united,) that it is far most probable the two are forms of one species. In this case the name of P. Emoryi, which was indicated and published in 1848, would, on all accounts, take precedence, and P. nuda be held as a variety of it. P. plumigera is distinguished by the smaller heads, narrower involucral scales, and longer upwardly barbellate awn of the pappus.

Pericome caudata, *Gray, Pl. Wright*, 2, *p.* 81. Cobre, New Mexico; *Wright*, *Bigelow*. Hot Springs, east of the Mimbres; *Bigelow*.

Baccharis cœrulescens, *DC. Prodr.* 5, *p.* 402. From the lower Rio Grande to the Mimbres, and the Colorado of the West.

Baccharis cœrulescens, *DC. Prodr.* 5, *p.* 402. var. foliis angustioribus. B. Pingræa, *Nutt. in Trans. Amer. Phil. Soc.* 7. *p.* 337, non *DC.* San Luis Rey, California; *Parry*. The specimen accords with No. 305 of Wright's N. Mexican collection, and is, I doubt not, merely a narrow form of B. cœrulescens, *DC.* But it is Nuttall's B. Pingræa, which is wrongly adduced as a synonym of B. Douglasii in *Torr & Gray, Fl. N. Am.* 2, *p.* 259, the real B. Douglasii (= No. 1776 Pl. Hartw.) not being then known to the authors.

Baccharis consanguinea, *DC. Prodr.* 5, *p.* 408. San Diego? California; *Schott*.

Baccharis pilularis, *DC. l. c.* San Luis Rey, California; *Parry*.

Baccharis salicina, *Torr. & Gray, Fl.* On the Rio Grande and Mimbres; *Wright*, *Bigelow*, etc.

Baccharis angustifolia, *Michx?; Gray, Pl. Lindh.* 2, *p.* 224. Fort Inge, Texas, to the San Pedro valley, Sonora, etc.; *Schott*, *Bigelow*.

Baccharis Emoryi (sp. nov.): suffruticosa, glabra, paniculato-ramosissima; ramulis angulato-striatis; foliis subspathulato-linearibus obtusis uninerviis integerrimis (subpollicaribus) deciduis vel raris, ramulinis minimis; capitulis solitaris geminisve in ramulos breves vel pedunculos paniculatos; involucro fœmineo obovato majusculo multiseriali pappo dimidio breviore; squamis glabris appressis coriaceis obtusis, exterioribus ovatis, intimis linearibus; acheniis glaberrimis.—Very common on the Gila; *Emory*, coll. in 1846, etc. Fort Yuma, E. California; *Major Thomas*. Sterile plant not seen. Involucre of fertile flowers 3 or 4 lines long; the thick scales closely appressed, and all the outer ones very obtuse, their very slight scarious margin not ciliate. Pappus half an inch long, whitish.

Baccharis sergiloides (sp. nov.): suffruticosa, glabra, confertim ramosissima; ramis ramulisque angulatis rigidis articulatis sæpissime aphyllis; foliis dum adsunt raris parvis spathulatis uninerviis, ramulorum ad bracteas minimas reductis; capitulis parvis in ramulos confertis subsessilibus, masculis magis glomeratis; involucro obovato, squamis multiseriatis appressis glabris oblongis, vel interioribus lanceolatis; fœm. acutis; masc. omnino obtusis; receptaculo conico subpaleaceo; acheniis glabris; pappo brevi.—Along the Gila or Colorado; *Emory*, 1846. Dry arroyos, 50 miles west of the Colorado; *Bigelow*. Southern part of California; *Dr. J. Le Conte*. Apparently two or three feet high, and very bushy and broomlike; the numerous heads only two, or, at most, three lines in diameter.

Baccharis brachyphylla, *Gray, Pl. Wright*, 2, *p.* 83. Southern borders of New Mexico; *Wright*.

Baccharis Wrightii, *Gray, Pl. Wright*, 1, *p.* 101. Western Texas to Chihuahua; common.

Baccharis ptarmicæfolia, *DC. Prodr.* 5, *p.* 419; *Schultz, in Bot. Herald*, *p.* 303. Hill sides between Babocomori and Santa Cruz, Sonora; *Wright* (1201). This is the same as Seemann's plant from the Sierra Madre, and, except in the smaller leaves and heads, accords very well with a specimen from the valley of Mexico, collected by Schaffner, and named B. ptarmicæfolia by Dr. Schultz. It accords still better, perhaps, with the character of B. thesioides, to which De Candolle's species and all these specimens are probably to be referred.

BACCHARIS BIGELOVII (sp. nov.): herbacea, glabra; ramulis striato-angulatis; foliis subviscosis oblongis lanceolatisve basi in petiolum angustatis grosse argute serratis, majoribus subincisis vel duplicato-serratis uninerviis obsolete venosis; capitulis masculis et fœmineis laxe paniculato-corymbosis parvis (lineas 2 longis) breviter pedicellatis 15–18-floris; involucri squamis 3–4-seriatis oblongo-lanceolatis sub-acutis margine scarioso eroso superne ciliatis; pappi setis fl. masc. subclavellatis.—B. ptarmicæfolia? *Gray, Pl. Wright,* 2, *p.* 83. Mountain ravine, Santa Cruz, Sonora; *Wright* (1200, male). Puerto de Paysano; *Bigelow* (both sexes). Oak woods between Babocomori and Santa Cruz; *Thurber.* The additional specimens, of both sexes, show this to be clearly different from the preceding, and probably an unpublished species. The leaves in Dr. Bigelow's specimens, from which the character is principally taken, are much broader than in Wright's or Thurber's, more irregularly toothed or incised, and all obtuse, while those of Wright's are lanceolate or linear-lanceolate, and often acute.

BACCHARIS RAMULOSA, *Gray, Pl. Thurb. p.* 301. Aplopappus (Aplodiscus) ramulosa, *DC. Prodr.* 5, *p.* 350. Linosyris (Aplodiscus) ramulosa, *Gray, Pl. Wright,* 1, *p.* 97, *&* 2, *p.* 80. Organ mountains, Cobre, etc., New Mexico; *Wright, Bigelow.* Guadalupe cañon; *Parry.* Mr. Wright and Dr. Gregg collected only the male plant, apparently the same with that published by De Candolle from Keerl's Mexican collection. The fertile plant now being known, the plant is found to be a genuine Baccharis. Berlandier likewise collected specimens in the mountains of San Luis Potosi (No. 1352.)

TESSARIA (PHALACROCLINE) BOREALIS, *Gray, Pl. Fendl. p.* 75, *& Pl. Wright, l. c.* River bottoms from the Rio Grande, New Mexico, to the Colorado of the West; gathered by all the collectors. Shrubby, 4–8 feet high, called *Arrow-wood;* forming dense thickets.

PLUCHEA CAMPHORATA, *DC.; Torr. & Gray, Fl.* 2, *p.* 261. San Luis Rey, California; *Parry.* Heads rather larger and the pedicels more downy; otherwise just as in the eastern plant.

PLUCHEA FŒTIDA, *DC.; Torr. & Gray, l. c.* Low places on the San Pedro, Texas; *Bigelow.*

FILAGINOPSIS MULTICAULIS, *Torr. & Gray, Fl.* 2, *p.* 263, *& in Pope R. R. Survey, t.* 3. Eastern Texas to El Paso and Chihuahua. Evidently F. Drummondii, *Torr. & Gray,* is not a distinct species. It is distributed among Berlandier's *reliquiæ,* under the Nos. 568, 1011, 1067, 1958, 2109, 2241, 2497.

DIAPERIA PROLIFERA, *Nutt.; Torr. & Gray, l. c.* Stony hills of the Pecos and Blanco; Texas; *Wright.*

EVAX (HESPEREVAX) CAULESCENS, *Gray, in Bot. Whipp. Rep. p.* 101, *t.* 11. Psilocarphus caulescens, *Benth. Pl. Hartw. p.* 319. Sacramento valley, California; *Mr. Fitch.*

PSILOCARPHUS TENELLUS, *Nutt.; Torr. & Gray, l. c., & in Whipp. Rep. l. c.* With the last; *Mr. Fitch.*

STYLOCLINE MICROPOIDES, *Gray, Pl. Wright,* 2, *p.* 84. Fronteras, New Mexico; *Wright, Parry.*

ECLIPTA ERECTA, *Linn.*; var. BRACHYPODA, *Torr. & Gray.* San Antonio, San Pedro, and the lower Rio Grande, Texas; *Schott,* etc.

BORRICHIA FRUTESCENS, *DC.* Texas, on the Pecos; *Wright.* Galveston and the lower Rio Grande; *Schott.*

SILPHIUM SCABERRIMUM, *Ell.; Torr. & Gray, Fl.* 2, *p.* 279. On the Sabinal, Texas; *Wright.*

Berlandiera Texana, *DC. Prodr.* 5, *p.* 516; *Deless. Ic. Sel.* 4, *t.* 26. Coleto creek and the Rio Grande, Texas; *Schott.*

Berlandiera lyrata, *Benth. Pl. Hartw. p.* 17. Cobre, Mimbres, Mule creek, etc., New Mexico; *Bigelow, Wright.* On the Rio Grande and in the Sierra Madre, Sonora; *Schott*, etc.

Engelmannia pinnatifida, *Torr. & Gray. l. c.* Rock creek, Texas; *Bigelow.* On the Rio Grande, at Cleto creek; *Schott.* A marked variety of this, with single and larger heads, smaller pappus, and less lobed leaves, was gathered by Thurber at Ojo Caliente, Chihuahua.

Melampodium cinereum, *DC.; Gray, Pl. Wright,* 1, *p.* 103, *&* 2, *p.* 85, & var. ramosissimum (M. ramosissimum, *DC.*) Common in Texas and New Mexico. Very various forms occur in Berlandier's collection, under Nos. 833, 2242, from San Fernando, Coahuila; 1492, 1881, from Bexar; and 607, 2017, from Laredo and the Nueces.

Melampodium hispidum, *H. B. K.; Gray, Pl. Wright,* 2, *p.* 85. Between the San Pedro and Santa Cruz, Sonora; *Wright.* Accords well with Mexican specimens collected by Schaffner.

Melampodium longicornu, (*Gray, Pl. Thurber, p.* 321): annuum, hispidulum, diffuse ramosum; foliis lanceolatis subintegerrimis; pedunculis alaribus filiformibus ($\frac{2}{3}$–2 unc. longis) monocephalis; involucri squamis internis fructiferis 7–10 nervoso-striatis dorso vix muricatis apice in cornu longissimum extus sericeo-puberulum circinnatum productis; ligulis aureis oblongis.—Near Santa Cruz, Sonora; *Thurber.* Santa Magdalena, Sonora; *Schott.* The published character of this curious species is here somewhat amended, since Mr. Schott's specimens (which are in good flower, while those of Mr. Thurber were in fruit) show conspicuous rays much longer than the disk; but they have the same long and silky horns. The leaves are not always perfectly entire, nor all obtuse.

DICRANOCARPUS, *Nov. Gen.*

Capitulum pauciflorum; floribus exterioribus 3–4 fœmineis subradiatis, ligula minima 2–3-loba, stylo breviore; disci totidem sterilibus, tubo corollæ cylindrico, limbo cyathiformi 5-fido. Involucrum 1–2-bracteolatum (bracteolis linearibus parvis), 3–4-phyllum: squamæ oblongæ, obtusæ, membranaceæ, erectæ, subplanæ, demum deciduæ. Receptaculum planum: paleæ lineares parvæ inter flores. Antheræ oblongæ, ecaudatæ. Stylus fl. masc. inclusus, indivisus, apice clavato-pubescens; fl. fœm. bifidus, ramis inappendiculatis. Ovaria disci inania, epapposa. Achenia (radii) difformis, nempe 1–2 linearia vel subulata, subteretia, lævia, persistentia, aristis 2 validis lævissimis divergentibus seu recurvis persistentibus cornuta; cætera breviora et crassiora, intus sæpe tuberculato-rugosa, aristis brevioribus vel obsoletis.—Herba annua, gracilis, fere glabra, *Heterospermi* facie, microcephala; foliis oppositis 3–5-sectis, summisve integris, filiformibus; capitulis solitariis pedunculatis; floribus flavis.

Dicranocarpus parviflorus, *Gray, Pl. Thurber, p.* 322, *adn.* Heterospermum dicranocarpum, *Gray, Pl. Wright,* 1, *p.* 109. Plains below San Carlos, Tamaulipas; *Parry.* Only mature achenia of this plant were known, from Wright's first collection, persisting on the receptacle from which everything else had fallen. The flowers, etc., furnished by Dr. Parry, enable us to complete the characters; these show that the plant is by no means a Heterospermum, (although allied to that genus,) but a new generic type which, according to the classification adopted, must be referred to the rather incongruous subtribe Melampodineæ. The flowering heads are only a line and a half in length, and the scarcely explanate ray-corollas are

smaller than those of the disk. The fertile ovaries, at least the one or two which make the longer and subulate achenia, begin to elongate soon after anthesis, and to project to twice or thrice the length of the involucre. The scales of the latter subtend the fertile flowers, but do not inclose or embrace them. Paleæ of the receptacle much smaller than the involucral scales, linear, plane, forming a circle between the ray and the disk, one subtending each sterile flower. Sterile style barely bidentate at the apiculate tip. The longer achenia, which usually persist after the fall of the involucre, etc., are from 3 to 4½ lines long, (excluding the awns,) barely half a line in thickness, slightly obcompressed, even, not at all margined, tipped with two stout, diverging or sometimes recurved-spreading, smooth, rigid, inarticulated and persistent, subulate awns, of 1½ to 3 lines in length. There is usually only one such achenium to each capitulum. The others are shorter and thicker, and tuberculate-rugose inside, but otherwise similar, or one of them barely 2 lines long, oblong, truncate at both ends, the apex bearing two very short and divaricate or almost obsolete awns or horns.

PARTHENIUM INCANUM, *H. B. K.; Gray, Pl. Wright*, 1, *p.* 103, *&* 2, *p.* 85. P. ramosissimum, *DC. Prodr.* 5, *p.* 532. From the Pecos to Cobre, etc.; *Bigelow, Wright, Schott.* On the Rio Grande, below Mount Carmel; *Parry.*

PARTHENIUM ARGENTATUM (sp. nov.): fruticosum, pube brevi appressima sericeo-incanum; foliis spathulato-lanceolatis oblongisve in petiolum longe attenuatis parce dentatis seu laciniatis sub-triplinerviis; ramulis floridis elongatis nudis oligocephalis; involucri squamis obtusissimis; acheniis sericeis; pappo e paleis 2 membranaceis lanceolatis.—Near Escondido Creek, Texas, in rocky places, Sept. 1852; *Dr. Bigelow.*—A well marked species, connecting the sections Argyrochæta and Parthenichæta; the leaves and branches whitened with a very fine and close silky-silvery pubescence, which appears to be wholly or nearly persistent. Leaves one to two inches long, including the tapering base and petiole, 2 to 5 lines wide, mostly acute, scarcely veined, beset on each margin with from one to three salient teeth, or sharp lobes. Flowering branchlets slender, 4 to 8 inches long, nearly leafless and peduncle-like, bearing 3 to 7 sub-sessile heads (as large as those of P. incanum) in a cluster. Exterior scales of the involucre short, orbicular-ovate; the inner orbicular, scarious-membranaceous. Paleæ of the pappus lanceolate or oblong-lanceolate, rather narrower and less obtuse than in P. Hysterophorus, puberulent, the inner edge more or less adnate to the base of the broadly obovate and cucullate emarginate ligule.

PARTHENIUM HYSTEROPHORUS, *Linn.* Texas, etc.; common in low places.

PARTHENICE MOLLIS, *Gray, Pl. Wright*, 2, *p.* 85. Near Santa Cruz, Sonora; *Wright, Thurber.*

EUPHROSYNE AMBROSIÆFOLIA, *Gray, Pl. Wright*, 1, *p.* 102, *&* 2, *p.* 85. Near Conde's Camp, New Mexico; *Wright.* Cook's Springs; *Bigelow.*

IVA DEALBATA, *Gray, Pl. Wright*, 1, *p.* 104. Leon Springs; *Bigelow.* Lagunas de Patos, Chihuahua; *Thurber.*

DICORIA, *Torr. & Gray, in Emory, Rep.*, 1848, *p.* 143.

Capitulum monoicum; floribus fœmineis 2 in ambitu, masculis 8-12 in disco. Involucrum patulum, duplex, exterius e phyllis 5 ovalibus herbaceis uniseriatis, interius e squamis 2 orbiculatis tenuiter scariosis planis mox accrescentibus, utraque florem fœmineum fulcrante. Receptaculum parvum, planum, paleis angustis lineari-spathulatis inter flores. *Fl. Foem.* Corolla nulla: stylus alte bifidus, ramis linearibus glabris. *Fl. masc.* Corolla obconica, 5-dentata. Antheræ vix coalitæ, sed filamentis monadelphis. Stylus abortivus in synemate apice 5-dentato

inclusus, simplicissimus. Ovarium nullum. Achenia obcompresso-plana, ala laciniata circumdata, cum squamis fructiferis petaloideo-scariosis iis majoribus involucrum externum multoties superantia. Pappus brevis, plurisetulosus, deciduus vel evanescens.—Herba humilis, ramosa, hispidulo-canescens, alternifolia; capitulis racemoso-paniculatis, fructiferis cernuis.

D. CANESCENS. In the sandy desert of the Gila and of the Colorado; *Emory*. A small specimen of this curious plant was brought home by Col. Emory from his reconnaissance of the Gila, etc., in 1846; but it has not again been met with. The base of the plant is unknown. Leaves, at least the upper ones, alternate, oval, obtusely dentate, on slender petioles, scabrous or hispid, and when young canescently villous on both sides; those of the flowering branches gradually reduced to small and spatulate bracts. Heads short-pedicelled, arranged in loose and nearly leafless spikes or racemes, which are panicled at the summit of the stem in anthesis, only one and a half lines long; but in fruit the whitish and somewhat glandular and erose pair of inner involucral scales become three or four lines long and almost as broad; they are loosely appressed to the achenia which they subtend, and appear to be deciduous with them at maturity. The mature achenia are about 3 lines long, and 2 lines wide, including the strong laciniate-toothed and incised wing, both faces slightly hispid, and carinately one-nerved in the middle; near the summit of the nerve of the inner, and sometimes of the outer face also, a small crest often appears like the rudiments of an anterior and posterior wing. Although the full-grown achenia commonly appear destitute of a pappus, yet in the flowering state there is always a rather conspicuous ring of short bristles surrounding the base of the naked style, and traces of it are generally discernible at maturity. The bristles are united at the base into a ring, and appear to form a true pappus. They consist, however, of single rows of cells, exactly like the short and fine bristly hairs which fringe the margin of the inner involucral scales. It will be seen that the genus belongs to the division Iveæ of De Candolle. The name (from δισ, two, and κορισ, a bug,) alludes to the two achenia appearing like bugs, or like the achenia of some species of Coreopsis.

AMBROISA PSILOSTACHYA, *DC. Prodr.* 5, *p.* 526; *Gray, Pl. Wright, l. c.* A. coronopifolia, *Torr. & Gray*. Common, from Texas to Sonora. It occurs both with unarmed and tuberculate fruit.*

FRANSERIA TENUIFOLIA, var. TRIPINNATIFIDA, *Gray, l. c.* Common from Texas to Sonora. This is both Ambrosia fruticosa (excl. var. β) and A. confertiflora of De Candolle; but none of the forms in Berlandier's collection are at all shrubby.

FRANSERIA HOOKERIANA, *Nutt.* El Paso to Sonora, etc.; common.

FRANSERIA DUMOSA, *Gray, in Frémont, 2d Exped. p.* 316; var. ALBICAULIS. *F.* albicaulis, *Torr. Pl. Frém. p.* 16. Desert of the Colorado of the West; common; *Thurber, Bigelow, Schott.*

FRANSERIA DELTOIDEA, *Torr. Pl. Frémont, p.* 15. Valley of the Gila; *Parry*. A well-marked species; but it should be compared with F. chenopodifolia, *Benth. Bot. Voy. Sulph.*, from lower California.

* The following is an undescribed species, occurring in Berlandier's *reliquiæ:*

AMBROSIA CHEIRANTHIFOLIA, (sp. nov.): humilis, pube minuta canescens: ramis foliosis; foliis oblongo-lanceolatis seu oblongo-spathulatis integerrimis sessilibus, superioribus flores fœmineos fulcrantibus; capitulis masculis elongato-racemosis ebracteatis: fructibus 4–5-spinosis, spinis crassis.—San Fernando, Cohahuila, 1543, 3043.—A perennial herb, apparently not over a foot in height, considerably branched. Leaves an inch or rather more in length, 3 to 6 lines wide, all undivided and entire, whitened both sides with a fine and short appressed pubescence. Sterile heads 2½ lines long, nearly glabrous, armed with four or five short and stout spines, which are about the length of the similar beak.

HYMENOCLEA MONOGYRA, *Torr. & Gray, Pl. Fendl. p.* 79, *& Pl. Wright, l. c.* Common on the frontier, from Eagle Pass, Texas, to Sonora.

ZINNIA TENUIFLORA, *Jacq. Ic. Rar.* 3, *t.* 590; *Gray, Pl. Wright,* 2, *p.* 86. Sonora and Chihuahua; *Thurber, Schott,* etc.

ZINNIA (DIPLOTHRIX) ACEROSA, *Gray, Pl. Wright,* 1, *p.* 106. Dry hills, from Eagle Springs, etc , to El Paso; *Bigelow,* etc.

ZINNIA (DIPLOTHRIX) GRANDIFLORA, *Nutt.; Gray, Pl. Wright,* 1, *p.* 105. Sonora, Chihuahua, New Mexico, and W. Texas; gathered by all the collectors.

ZINNIA (DIPLOTHRIX) PUMILA, *Gray, Pl. Fendl. p.* 81, *& Pl. Wright, l. c.* Sonora, lower Rio Grande, etc. Intermediate forms appear to connect this with the last.

ZINNIA (HETEROGYNE) ANOMALA, *Gray, l. c. t.* 10, *f.* 2. Eagle Pass on the Rio Grande (*Bigelow*) to the San Pedro, Pecos, etc.

HELIOPSIS PARVIFOLIA, *Gray, Pl. Wright,* 2, *p.* 86. Between Babocomori and Santa Cruz, Sonora; *Wright, Thurber.* Some of Mr. Thurber's specimens have larger leaves than those of Wright.

HELIOPSIS BUPHTHALMOIDES, *Dunal,* which is also H. canescens, *H. B. K.* Between San Bernardino and Janos, Chihuahua; *Thurber.*

HALEA TEXANA, *Gray, Pl. Fendl. p.* 83, *& Pl. Wright, l. c.* Gravelly plains, western and southern Texas.

LEPACHYS COLUMNARIS, *Torr. & Gray, Fl.* 2, *p.* 215; & var. PULCHERRIMA. Western Texas to New Mexico.

LEPACHYS TAGETES, *Gray, in Bot. Whippl. Rep. p.* 103. L. columnaris, var.? Tagetes, *Gray, Pl. Wright, l. c.* Western Texas to El Paso, etc.

RUDBECKIA FULGIDA, *Ait.* Western Texas; *Bigelow.*

ALDAMA UNISERIALIS, *Gray, Pl. Lindh.* 2, *p.* 228. Southern Texas; *Schott,* etc.

HELIOMERIS MULTIFLORA, *Nutt.; Gray, Pl. Fendl. p.* 87; and var. HISPIDA, *Gray, Pl. Wright,* 2, *p.* 87. New Mexico, Sonora.

HELIOMERIS TENUIFOLIA, *Gray, l. c.* From the San Pedro, Western Texas to Sonora, Chihuahua, etc.

FLOURENSIA CERNUA, *DC. Prodr.* 5, *p.* 593. From the Pecos and Eagle Pass, on the Rio Grande, to the Mimbres, etc., "sometimes covering large tracts of ground in villages and Mesquite bottoms;" *Schott.*

ENCELIA CALIFORNICA, *Nutt. in Trans. Amer. Phil. Soc.* 7, *p.* 357. San Diego, California; *Schott.*

ENCELIA CONSPERSA, *Benth. Bot. Voy. Sulph. p.* 26. Diluvial banks of the Colorado; February; *Schott.* This must be Bentham's E conspersa; but the involucre is more pubescent than he describes, the rays glabrous, and the foliage retains much of the close cinereous pubescence. The heads, also, are quite small. It is probably the same as No. 308, of Coulter's Californian collection.

ENCELIA NIVEA, *Benth. l. c.* E. farinosa, *Gray, in Emory Rep. p.* 143. On the Gila; *Emory, Parry,* etc., and the Colorado of the West; *Bigelow.* This is the same as Coulter's No. 327, and must be Bentham's E. nivea, from Lower California, although the characters do not wholly accord.

Simsia (Geræa) canescens, *Gray, Pl. Fendl. p.* 85. Sand hills near Fort Yuma, California, January; *Schott.* A striking species, with a remarkably white-woolly involucre and large showy rays. A less hairy form with laciniate leaves was gathered on the Gila by *Dr. Parry.*

Simsia (Geræa, sed eradiata) frutescens, (sp. nov.): hispidulo-scaberrima, ramosissima; foliis parvis ($\frac{1}{2}$–$\frac{3}{4}$-pollicaribus) oblongis seu ellipticis utrinque obtusis integerrimis, petiolo nudo; capitulis longiuscule pedunculatis ramulos terminantibus discoideis; involucri squamis exterioribus lanceolatis ovatisve acuminatis subsquarrosis albo-hirtis, interioribus obovatis obtusis; acheniis margine cum aristis brevibus (interdum fere obsoletis) longissime villosissimis. Agua Caliente, on the Gila; *Colonel Emory,* November 28, 1846. Sierra Prieta, near Fort Yuma, E. California, December, 1854; *Schott.* Also gathered (with rather large heads) by *Colonel Frémont,* in 1849, somewhere in the interior country of California. Fragments of this plant, too poor to characterize, have been known for some years in a small collection made by Colonel Emory in his earliest exploration of the Gila country. There are now good materials at hand. It appears that the plant must be associated with another from the same region, upon which I formerly proposed to found a genus under the name of *Geræa,* but afterwards (*Pl. Fendl. l. c.*) concluded to append to Simsia. The present species is remarkably distinguished, however, by its woody or suffruticose, slender stems, (apparently belonging to a low and much branched bushy plant,) and by the total absence of the rays, which are remarkably large in its congener. Very likely the genus Geræa (placed between Simsia and Encelia) should be re-established for these two species; but for the present they may be appended to Simsia, although new discoveries may more probably approximate them to Encelia. The heads vary from a quarter to half an inch in diameter. The awns of the pappus are often as long as the much elongated and dense fringe of soft white hairs which surround the otherwise glabrous achenium, but always covered with similar long hairs. Sometimes they are almost obsolete, or reduced to a slender base for the insertion of the tuft of hairs.

Simsia (Geræa) scaposa, *Gray, Pl. Wright. l. c.* Stony hills between the Mimbres and the Rio Grande, New Mexico; *Wright.*

Simsia exaristata, *Gray, Pl. Wright.* 2, *p.* 87. On the San Pedro, &c., Sonora; gathered by all the collectors.

Simsia (Barrattia) calva, *Gray, Pl. Lindh.* 2, *p.* 228. Throughout southern and western Texas; "common on dry and stony hill-sides of the chalk and oolite;" *Schott.*

Viguiera cordifolia, *Gray, Pl. Wright.* 1, *p.* 107, *&* 2, *p.* 89. Common in New Mexico and northern Sonora and Chihuahua; gathered by all the collectors.

Viguiera laxa, *DC.; Gray, l. c.* Cobre, &c., New Mexico; *Wright.*

Viguiera laciniata, (sp. nov.): frutescens, hispidulo-scabra; foliis plerisque alternis subconfertis petiolatis hastato-lanceolatis incisis seu laciniato-pinnatifidis subtus grosse reticulatis rigidis, summis parvis bracteiformibus; capitulis geminis ternisve breviter pedunculatis; involucri 2–3-serialis squamis ovato-oblongis vix appendiculatis; receptaculo planiusculo; ligulis integerrimis; acheniis subciliatis aristis paleæformibus 2 et squamellis latis apice eroso-dentatis 6—8 coronatis.—Rancho Gamacha, east of San Diego, California, September, 1855; *Schott.* A remarkable species, apparently a low and more or less shrubby plant, with slender branches. Leaves about 1$\frac{1}{2}$ inch long, including the petiole, thin but rigid, very scabrous, the coarse teeth, or lobes, ovate or triangular, blunt. Heads nearly half an inch long; rays nearly of the same length. Squamellæ of the pappus thick. Paleæ of the receptacle acutish.

ACTINOMERIS WRIGHTII, *Gray, Pl. Fendl. p.* 85, *& Pl. Wright. l. c.* Between Cobre and Conde's Camp, New Mexico, etc.; *Wright, Thurber.*

ACTINOMERIS LONGIFOLIA, *Gray, Pl. Wright.* 2, *p.* 89. Mountains east of Santa Cruz, Sonora; *Wright.*

TITHONIA TUBÆFORMIS, *Cass.* Magdalena, Sonora; *Thurber.* "Flowers orange-yellow."

HELIANTHUS CILIARIS, *DC. Prodr.* 5, *p.* 587. From the lower Rio Grande to the Gobre, etc.; New Mexico; also in Sonora, where Mr. Thurber gathered a form with remarkably broad leaves.

HELIANTHUS GROSSE-SERRATUS, *Martens;* var., *Gray, Pl. Wright.* 2, *p.* 89. Valley of the Mimbres, New Mexico; *Wright.* Between the Rio Salado and Victoria, Texas; *Schott.*

HELIANTHUS MAXIMILIANI, *Schrad.; DC. l. c.* Leon Springs, and on the Limpia; *Bigelow.* Rio Seco, Texas; *Schott.*

HELIANTHUS ANGUSTIFOLIUS, *Linn.* Between Indianola and Victoria, Texas; *Schott.*

HELIANTHUS LENTICULARIS, *Dougl. in Bot. Reg. t.* 1265. Valley of the Gila; *Schott.* Common in Texas and New Mexico.

HELIANTHUS PETIOLARIS, var. CANESCENS, *Gray, Pl. Wright.* 1, *p.* 108, *&* 2, *p.* 89. The remarkably silvery-canescent form. On the Rio Grande, below El Paso; *Wright, Bigelow,* etc.

HELIANTHUS, in *Pl. Wright. l. c.*, referred to H. petiolaris. Cobre, *Wright,* (1231,) Escondido creek; *Bigelow.* A singular and still doubtful plant.

HELIANTHUS CUCUMERIFOLIUS, *Torr. & Gray, Fl.* 2, *p.* 319. On the lower Rio Grande; *Schott.*

HELIANTHTS CUCUMERIFOLIUS, var. PRÆCOX. H. praecox, *Englm. & Gray, Pl. Lindh.* H. debilis, var. *Torr. & Gray, Fl. l. c.* Cleto creek, Texas; *Schott.*

HELIANTHUS ARGOPHYLLUS, *Torr. & Gray, l. c.* Cleto creek, between Victoria and San Antonio, Texas; *Schott.* A striking species, recently introduced into the gardens.

HELIANTHUS (HARPALIUM) TEPHRODES, (sp. nov.): humilis, pube appressissima canescens; foliis plerumque alternis ovatis petiolatis subserratis basi trinerviis, junioribus cano-argenteis; pedunculo gracili monocephalo; involucri squamis ovato-lanceolatis mucronato-acutatis; pappo e squamellis paleisve plurimis, majoribus 1—2 sæpius aristiformibus deciduis.—Mirasol del Monte, in the Californian desert of the Colorado, in sandy places by the road-side, October, 1855; *Schott.* The specimen is incomplete, and hardly sufficient for proper determination; the base of the stem and the root unknown. The stems or branches collected are scarcely a foot long, and slender. Leaves about an inch long. Scales of the involucre merely biserial. Rays about 12, yellow; disk-corollas tipped with purple. The chaffy awns of the pappus are sometimes elongated, but often one or both of them reduced to strong squamellæ, like the rest.

COREOPSIS (AGARISTA) CALLIOPSIDEA. Agarista calliopsidea, *DC. Prodr.* 5, *p.* 569. Moist and grassy plains between Monterey and Santa Barbara, California. An unpublished Peruvian species connects Agarista with Coreopsis, of which it can form only a section.

COREOPSIS CARDAMINEFOLIA, *Torr. & Gray, Fl.* 2, *p.* 346. Low places on the Limpia, Rio Grande, etc.

COREOPSIS DRUMMONDII, *Torr. & Gray,* var. Western Texas; *Wright.*

THELESPERMA FILIFOLIUM, *Gray, in Kew Jour. Bot.* 1, *p.* 252, *& Pl. Wright. l. c.* Common in Southern and Western Texas.

THELESPERMA GRACILE, *Gray, l. c.* From the Limpia to Cobre, New Mexico, and Santa Cruz, Sonora, (*Schott.*)

THELESPERMA SUBSIMPLICIFOLIUM, *Gray in Hook. Kew Jour. Bot.* 1, *p.* 252 (nom. paullo mutatum): foliis rigidis anguste lineari-filiformibus, caulinis simplicibus trisectisve, inferiori-

bus et radicalibus interdum 5-sectis vel biternatisectis; capitulis radiatis; acheniis fusiformibus (extimis tantum tuberculato-rugosis) pappo bicorni brevissimo erecto nunc fere obsoleto coronatis. Cosmidium simplicifolium, *Gray, Pl. Fendl. p.* 86. Gravelly hills, near Sacati; *Bigelow.* San Pedro River, Sonora; *Schott.* This has been confused both with T. graciles and T. filifolium, and specimens in Wright's collection have perhaps been distributed as a form of the latter. Its rigid stems and foliage accord with the former, though the leaves are commonly less divided; but the rays distinguish it from that species, while the pappus (reduced to two exceedingly short or obsolete teeth, which are strictly erect, and slightly hairy, but not barbed) distinguishes it from both species. A nearly or quite simple leaved state of this species is my Cosmidium simplicifolium, which name, a little altered to bring it nearer the fact, it is proposed to retain.

COSMOS BIPINNATUS, var. PARVIFLORUS, *Gray, Pl. Wright.* 2, *p.* 90. From the Cobre, New Mexico, to Santa Cruz, Sonora; *Bigelow, Wright, Thurber.*

BIDENS BIPINNATA, L. Chihuahua and Sonora; *Thurber.* Mountains near San Esteban, *Bigelow.* Cobre creek, *Wright.* The awns are only two, but in all other respects the same as B. bipinnata. Wright's No. 345 has the achenia mostly two-awned.

BIDENS BIGELOVII (sp. nov.): annua, fere glabra; caule ramoso gracile suberecto; foliis trisectis, segmentis 3–5-partitis, lobis oblongis cuneatisve paucius pinnatifido-incisis; capitulis subsolitariis longe pedunculatis; involucro glabriusculo; ligulis albidis? discum haud superantibus sæpiusve nullis; acheniis heteromorphis, exterioribus brevibus lineari-cuneatis truncatis papilloso-hispidulis scaberrimis, pappo nunc breviter 2–3-aristatis nunc brevissime bicorni vel obsoleto, cæteris angustissime linearibus lævibus (semipollicaribus) breviter 2-(raoro 3)-aristatis. Banks of the Rio Limpia; *Bigelow.* Cibolo valley, Texas, *Parry*, etc. Mountain arroyo, Rock creek and Puerto de Paysanos; *Bigelow*, (var. with the awns mostly 3 and longer.) In foliage and aspect this plant is somewhat intermediate between B. bipinnata and B. tenuisecta; in fructification it is much more like B. heterosperma, *Pl. Wright*, but the heads are twice or thrice the size. The outer achenia are truncate and rough in all the specimens. Awns of the disk-achenia 1 to 1½ line long. To this belongs No. 346 of Wright's first collection referred to, B. tenuisecta in *Pl. Wright.* 1, *p.* 109.

BIDENS HETEROSPERMA, *Gray, Pl. Wright.* 2, *p.* 90. New Mexico; known only from plants raised from seeds gathered by *Wright.*

BIDENS FŒNICULIFOLIA, *DC.*, var. *Gray, Pl. Wright. l. c.* Northern Sonora; *Wright, Thurber.*

BIDENS HETEROPHYLLA, *Ort.?; Gray, Pl. Wright. l. c.* Between the San Pedro and Santa Cruz, Sonora; *Wright.*

BIDENS CHRYSANTHEMOIDES, *Michx.* Ojo Caliente, Chihuahua; *Thurber.* San Felipe; *Schott, Bigelow.* B. helianthoides, *H. B. K.*, is probably the same species.

HETEROSPERMUM TAGETINUM, *Gray, Pl. Fendl. & Pl. Wright. l. c.* Mountains of the Limpia and Cobre, New Mexico, *Wright, Bigelow.* Too near H. pinnatum.

GUARDIOLA PLATYPHYLLA, *Gray, Pl. Wright.* 2, *p.* 91. Sonora, between Babocomori and Santa Cruz; *Thurber, Wright.* Sierra de Pajarito; *Schott.*

LEPTOSYNE DOUGLASII, *DC. Prodr.* 5, *p.* 531; *Torr. & Gray, Fl.* 2, *p.* 355. Moist and

grassy plains between Monterey and Santa Barbara, California; *Parry*. Dr. Stillman has detected a second species of this genus.*

Tuckermania maritima, *Nutt. in Trans. Amer. Phil. Soc.* 7, *p* 363; *Torr. & Gray, l. c.* San Diego, California; common near the beach all around the bay, March; *Parry*. It has been introduced into the gardens from seeds gathered by Dr. *Parry*, and is a very showy plant.

Sanvitalia Aberti, *Gray, Pl. Fendl. p.* 87. Stony hills, Cobre, New Mexico; *Bigelow, Wright, Thurber.*

Sanvitalia tragiæfolia, *DC. Prodr.* 5, *p.* 628. On the Rio Grande above Presidio; *Schott.*

Oligogyne Tampicana, *DC. Prodr.* 5, *p.* 529. Eagle Pass, Santa Rosa, etc., on the Rio Grande; *Bigelow, Schott.*

Ximenesia encelioides, *Cav.* In various forms, especially var. cana. From the lower Rio Grande to Cobre and the Gila.

Verbesina podocephala, *Gray, Pl. Wright.* 2, *p.* 92. Sonora, near Santa Cruz, *Wright.* Sierra west of Santa Cruz and Tucson; *Schott.* This is nearly related to V. pedunculosa, *Schultz, Bip.* (Actinomeris pedunculosa, *DC.*, Verbesina capitaneja, Nees); but that has the leaves decurrent on the stem.

Verbesina Virginica, *Linn.* var. (V. microptera & V. polycephala, *DC.*) Lower Rio Grande, etc.; *Schott.*

Zexmenia Texana, *Gray, Pl. Wright.* 1, *p.* 112. Wirtgenia Texana, *Schultz, Bip. in Seem. Bot. Herald, p.* 304. On the San Antonio, Pecos, San Pedro, and the Rio Grande; *Bigelow, Parry*, etc. Dr. Schultz, apparently with reason, has separated this from Zexmenia, and has referred it to his African genus Wirtgenia, on account of a semilunar or roundish squamula appressed to the base of the achenium on each side, and indeed adherent to it. Here it is of soft fleshy texture when in good condition, but it dries up at length, leaving only a vestige. Dr. Schultz has overlooked the fact that the plant (varying greatly as to the wings of the achenium and the awns of the pappus) is pretty clearly Wedelia hispida, *H. B. K.*, which specific name may claim to be restored. A specimen from Schultz, gathered by Schaffner, in Mexico, near Tacubaya, is the same as a plant cultivated in the *Jardin des Plantes* in the year 1815.

Zexmenia brevifolia, *Gray, Pl. Wright.* 1, *p.* 112. Mountains, etc., on the Rio Grande at the great cañon, Eagle Pass, Rio Concho; *Bigelow, Parry, Schott.*

Spilanthes Nuttallii, *Torr. & Gray, Fl.* 2, *p.* 356, var. Western Texas, San Felipe, Piedras Pintas, Zocate creek, Los Moros, etc.; *Bigelow, Schott.*

Flaveria chloræfolia, *Gray, Pl. Fendl. p.* 88. Comanche and Leon Springs, southern Texas; *Parry, Bigelow.*

Flaveria Contrayerba, *Linn.* Along the lower Rio Grande; *Bigelow, Parry.*

Sartwellia Flaveriæ, *Gray, Pl. Wright.* 1, *p.* 122. Rio Cabeza, Texas; *Thurber.* Plain below San Carlos, Cohahuila; *Schott.*

* Leptosyne Stillmanii (sp. nov.): foliis inferioribus oppositis, omnibus trifidis seu pinnato-5-partitis, segmentis rhachique planis anguste linearibus; squamis involucri externi oblongis; corollis haud annulato-barbatis; appendicibus styli fl. disci haud apiculatis; acheniis glaberrimis, radii apiculatis margine fungoso subrugoso cinctis. In the valley of the Upper Sacramento, *Dr Stillman.*

The single specimen collected is a span high, with shorter and coarser leaves than L. Douglasii, and smaller heads. The scales of the exterior involucre are broader and shorter, rather fewer, and externally sparingly bearded at their base. There is only a faint indication of the bearded ring, so manifest on the tube of the disk-corollas of L. Douglasii; nor do the achenia show a trace of the capitate hairs of that species. The appendages of the style, moreover, are very obtuse, and destitute of the abrupt and sharp tip. Still it is an undoubted congener of L. Douglasii.

Adenophyllum Wrightii, *Gray, Pl. Wright.* 2, *p.* 92. Hill sides at the Cobre, New Mexico; *Wright, Bigelow.*

Lebetina cancellata, *Cass.; DC. Prodr.* 5, *p.* 639. Prairies near Chihuahua; *Thurber.* Sonora, east of the Sierra Madre; *Schott.* The genus is probably to be reduced to Adenophyllum, as I have elsewhere suggested.

Dysodia chrysanthemoides, *Lag.* San Estaban and Rock creek; *Bigelow.* Chihuahua; *Thurber.*

Dysodia porophylloides, *Gray, Pl. Thurber, p.* 322. San Felipe, interior of California; *Thurber.*

Hymenatherum (Aciphyllæa) acerosum, *Gray, Pl. Wright.* 1, *p.* 115. Hills, etc., from San Felipe, Texas, to New Mexico and Sonora.

Hymenatherum Wrightii, *Gray, Pl. Fendl. & Pl. Wright. l. c.* Common in western Texas.

Hymenatherum polychætum, *Gray, l. c.* Prairies, from Presidio del Norte to Cobre, New Mexico.

Hymenatherum pentachætum, *DC.; Gray, l. c.* Rocky or gravelly hills, from lower Texas to Sonora.

Hymenatherum tenuifolium, *Cass.; Gray, l. c.* Gravelly plains, lower Texas to Chihuahua and Sonora.

Hymenatherum Gnaphaliopsis, *Gray, l. c.* Plains, from the lower Rio Grande to New Leon. In the distribution of Berlandier's collection this occurs under the Nos. 962, 1404, 1407, 1861, 2392. (No. 14076 in *DC. Prodr.* is a typographical error for 1407.) "Called *Lepiana* by the Mexicans, and used by them and the Indians as a remedy for catarrh." *Schott.*

Lowellia aurea, *Gray, Pl. Fendl. l. c.* On the Limpia; *Wright, Bigelow, &c.*

Chrysactinia Mexicana, *Gray, l. c.* Hills of the San Pedro, Limpio, etc., Texas and New Mexico.

Nicolletia Edwardsii, *Gray, Pl. Wright.* 1, *p.* 119, *t.* 8. Gravelly plains, Presidio del Norte, Arroyo San Juan, etc.; *Bigelow, Parry.* Called "Yerba Venado" by the Mexicans.

Tagetes micrantha, *Cav.; Gray, l. c.*, 2, *p.* 93 Cobre, New Mexico; *Wright, Bigelow.**

CLAPPIA, Nov. Gen.

* At Laredo, on the Lower Rio Grande, in August, 1829, Berlandier (as appears from the remains of his collections bough from his widow) gathered a few specimens of a Composita of doubtful affinity. The specimens were not numbered, and doubtless have not been distributed by him. It is to be sought on the lower part of the Rio Grande. The plant appears to be the type of a new genus, which I dedicate to Dr. A. Clapp, of New Albany, Indiana, one of the most zealous botanists of our Western States, and the author of an important work, entitled "A Synopsis or Systematic Catalogue of the Medicinal Plants of the United States, 1852."

Capitulum multiflorum, heterogamum; ligulis fœmineis; fl. disci hermaphroditis, corollis tubulosis, limbo 5-fido. Involucrum imbricatum, pauciseriale; squamis laxis ovalibus obtusissimis lineatis. Receptaculum convexum, epaleatum, setoso fimbrilliferum. Antheræ ecaudatæ. Styli rami fl. herm. angusti, glabri, cono brevissimo obtuso superati. Achenia subangulata, 10-costata. Pappus simplex, e setis rigidis seu paleis angustissimis 20—25 hispido-serrulatis, disci corollam subaequans. Herba ramosa, glabra, foliis carnosis alternis confertis filiformibus obsolete pareeque glanduloso-punctatis, ramis floridis apice nudis monocephalis; floribus ut videtur flavis.

Clappia suædæfolia.—Herb a foot or more in height, probably from a perennial root and fleshy stems, and with fleshy leaves much resembling those of Suæda or Chenopodina maritima. Peduncles 2 or 3 inches long, somewhat thickened above; the head half an inch in diameter. Scales of the involucre consimilar, but the outer successively shorter, distinct, marked with several dark impressed lines apparently of a glandular nature; the margin narrowly scarious. Fimbrillae of the receptacle as long as the ovaries. Ligules 10 or 12, linear, tridenticulate at the apex Lobes of the disk-corollas oblong-lanceolate. Achenia a line and a half long, truncate at the broad summit, minutely and sparsely hispid. Pappus ferrugineous, rigid, rather

Porophyllum macrocephalum, *DC. Prodr.* 5, *p.* 648. Sonora, on the Sonoita; *Wright.* Near Santa Cruz; *Thurber.*

Porophyllum Greggii, *Gray, Pl. Wright,* 1, *p.* 120. Dry hills, etc., southern part of New Mexico and adjacent districts in Chihuahua; *Wright, Bigelow, Captain Smith.* On the Colorado of the West; *Schott.*

Porophyllum scoparium, *Gray, l. c.* On the San Pedro and Puercos, El Paso, etc.; *Wright, Bigelow, Thurber.*

Agassizia suavis, *Gray & Engelm. Pl. Lindh.* 2, *p.* 229. Gravelly hills, southern and western Texas, on Rock creek, etc.; *Parry, Bigelow.*

Gaillardia pinnatifida, *Torr.* Common from Rock creek, the Pecos, etc., to El Paso, Cobre, etc., New Mexico.

Gaillardia pulchella, *Foug.; Torr. & Gray, l. c.* Common from Texas to Sonora.

Gaillardia lanceolata, *Michx.* Eastern Texas, on the coast; *Schott.*

Palafoxia linearis, *Lag.; DC. Prodr.* 5, *p.* 124. Diluvial banks of the Colorado, Sonora; *Schott.* Fort Yuma, California; *Major Thomas.* Chihuahua, east of Rio Santa Maria; *Schott.*

Palafoxia Hookeriana, *Torr. & Gray, Fl.* 2, *p.* 368. Valley of the Rio Grande below San Elizario; *Wright, Bigelow.* Sand hills, Medanos; *Thurber.*

Palafoxia Texana, *DC. Prodr.* 5, *p.* 125. Texas from San Antonio to Eagle Pass. Los Moros, New Mexico; *Bigelow.*

Palafoxia callosa, *Torr. & Gray, l. c.* From the Guadalupe river, Texas, to the Pecos.

Florestina tripteris, *DC. Prodr.* 5, *p.* 655. On the Pecos, Escondido, etc.; *Bigelow, Wright, Parry.*

Chænactis tenuifolia, *Nutt.; Torr. & Gray, Fl.* 2, *p.* 370. San Diego, California; *Thurber,* (a pretty large plant, a foot high,) *Schott,* (a small form, only 3 or 4 inches high.)

Chænactis stevioides, *Hook. & Arn.*; *Gray, Pl. Wright.* 2, *p.* 94. Hills, near Camp Fillmore, New Mexico; *Bigelow, Wright,* Cooke's spring, New Mexico; *Thurber.*

Chænactis carphoclinia (sp. nov.): annua? lanuloso-pubescens, mox glabrata, subviscosa; caule ramosissimo; foliis 1–2-pinnatipartitis, segmentis parvis linearibus (1–3 lin. longis); capitulis subcorymbosis; involucro viscoso; corollis albidis? radii limbo ampliato sed regulari discum haud superantibus, pappi paleis 4 ovato-lanceolatis acuminatis; receptaculo paleis nonnullis setaceis involucrum aequantibus inter flores onusto.—Gila and Colorado desert; *Schott.* Fort Yuma, E. California; *Major Thomas.* Plant 4 to 9 inches high, resembling slender forms of C. stevioides. Heads corymbose-panicled, half an inch long, on short and slender peduncles, 12—25-flowered. Involucre either glandular-viscid or hirsute with viscid hairs. The remarkable peculiarity of the species consists in a set of filiform or setaceous persistent paleæ on the receptacle, 5 to 10 in number, subtending as many disk-flowers; but in every other respect the plant is a true Chænactis.

Hymenopappus luteus, *Nutt.; Gray, Pl. Fendl. p.* 97. Stony hills, Cobre, New Mexico; *Bigelow, Wright;* and Mimbres; *Thurber.* Guadalupe cañon; *Captain Smith.* Cordilleras

longer than the achenium; the bristles, or rather aristiform paleae, consimilar, except that a few are smaller, tapering upwards, simple, but all more or less coherent at the very base, so that they fall off in a ring. There are faint indications of some dark glands on the foliage, which, if confirmed in better specimens, may justify a reference of the genus to the Tagetineæ, in which case it would make as perfect a transition between that subtribe and the Helenieæ as another genus of the same region (Sartwellia) does between the latter and the Flaverieæ.

behind San Diego; *Parry:* (a somewhat glabrate form.) Nuttall's original specimens are depauperate and not fully developed; they gave rise to the unfortunate phrase "heads small," in the Flora of North America. But, in fact, they are perhaps the largest of the genus. The conspicuous pappus at length projects beyond the villosity of the achenium.

HYMENOPAPPUS FLAVESCENS, *Gray, Pl. Fendl. l. c.* Common from the Pecos to El Paso, etc.

HYMENOPAPPUS CORYMBOSUS, *Nutt.; Torr. & Gray, Fl.* 2, *p.* 370, and var.? NUTTALLII. On the San Pedro and Rio Grande, etc., Texas; *Bigelow, Schott.*

ACARPHÆA ARTEMISIAEFOLIA, *Harv. & Gray, in Pl. Fendl. p.* 98, *in not.* (TAB. XXXII.) Cordilleras east of San Diego, California, June; *Parry.* This rare plant was known only from a specimen in Coulter's Californian collection, No. 313, which presented no mature fruit. Dr. Parry's specimen is also a single one, (*more suo,*) but with well-formed fruit. The only points to be added to the original account of the plant are that the viscid-glandular leaves are scarcely, if at all, hoary; the corollas appear as if they were flesh-color rather than pale yellow, and the marginal ones are hardly ampliate; the mature achenia, all fertile and similar, are slightly incurved, compressed, and not manifestly striate. The compression of the achenia tends to confirm the genus as distinct from Chænactis, although the numerous analogous cases in this subtribe warn us to beware of genera resting solely on the absence of pappus. Vide, *Plantae Wrightianæ,* 1, *p.* 123.

BAHIA (ERIOPHYLLUM) ARTEMISIÆFOLIA, *Less.; DC. Prodr.* 5, *p.* 567. Monterey, etc., California; *Parry.* A shrubby plant, 2 or 3 feet high.

BAHIA (ERIOPHYLLUM) TRIFIDA, *Nutt. in Trans. Amer. Phil. Soc.* 7, *p.* 374; *Torr. & Gray, l. c.* Dry sandy hills, San Diego, California; *Parry.*

BAHIA (ERIOPHYLLUM) CONFERTIFLORA, *DC. l. c.; Torr. & Gray, l. c.* Dry places near Santa Barbara, California; *Parry,* etc. From San Diego to the Colorado; *Schott.*

BAHIA RUBELLA (sp. nov.): annua, pumila, floccoso-lanuginosa, ramosa; pedunculis subcorymbosis monocephalis; foliis alternis spathulatis apice sæpius tridentatis; involucro campanulato 8-phyllo lanuginoso, squamis erectis discum adæquantibus; ligulis 8 roseis ovalibus 3–4-dentatis; appendicibus styli fl. disci cono acutissimo superatis; receptaculo conico; acheniis hirsutulis; pappi paleis 8 enerviis obtusissimis.—Interior of California, in a dry valley, near San Felipe, (between San Diego and the Rio Colorado;) June; *Parry.* Plant 4 inches high; the leaves half on inch long. Peduncles from half an inch to an inch in length. Involucre 3 lines long. Disk-flowers 14–20, yellow. Ligules oval, deeply notched or 3–4-toothed at the apex. Pappus about one-quarter the length of the prismatic achenium; the paleae of equal length, four of them obovate-oblong, the alternate ones narrower and more spatulate, entire. With the style of true Bahia, but the appendages tipped with a longer and sharper cone, this little plant has the involucre of the section Eriophyllum, and a still more elevated (even conical) receptacle; and so tends to combine the two. In the rays, which are said to be pale purple and white, it accords with the obscure B. trolliifolia, of which it is probably a true congener.

BAHIA ABSINTHIFOLIA *Benth.,* var. DEALBATA, *Gray, Pl. Wright.* 1, *p.* 121. Sandy or gravelly soil, from the San Felipe to the Mimbres, and south to Chihuahua, etc.

BAHIA BITERNATA, *Gray, Pl. Wright.* 2, *p.* 95. Ojo de Gavilan, etc., New Mexico; *Wright, Thurber, Bigelow.* Llanos del Babuquibari, Sonora; *Schott.*

Bahia pedata, *Gray, Pl. Wright*, 1, *p.* 123. On the Pecos, Limpia, etc.; *Thurber, Wright.*

Bahia (Achyropappus) Bigelovii (sp. nov.): annua, striguloso-puberula; caulibus gracilibus diffuse ramosis; foliis oppositis tripartitis, segmentis integerrimis vel inferiorum 2–3-fidis lineari-filiformibus; pedunculis filiformibus monocephalis; involucri laxi squamis 8–9 oblongo-ovatis obtuse acuminatis glanduloso-pubescentibus; ligulis totidem oblongis; acheniis basi hirsutulis; pappi paleis 8 obovatis obtusissimis enerviis tubo corollæ disci viscoso-hispido fere dimidio brevioribus. Valley of the Limpio, W. Texas, July, 1852; *Bigelow.* Stems branched from the base a foot or more in height. Leaves short-petioled; their divisions 6 to 12 lines long. Peduncles solitary, 3 or 4 inches long. Involucre scarcely 3 lines in length, a little shorter than the disk. Flowers yellow; those of the disk as many as 30; their corolla a line and a half long; the slender and glandular-hispid tube abruptly dilated into the cyathiform 5-lobed limb. Style as in B. ambrosioides. Achenia linear-clavate, obtusely tetragonal, nearly a line and a half long. This is nearly related to the Schkuhria? Neo-Mexicana, *Gray, Pl. Fendl. p.* 96; which, however, is rayless and has disk-corollas scarcely longer than the pappus. While on the one hand it is plainly a congener of Achyropappus schkuhrioides, *Link & Otto.*, (which in specimens from De Candolle and others, contrary to the generic character, taken from A. anthemoides, has a pappus very much shorter than the corolla,) on the other it is equally inseparable from true Bahia (B. ambrosioides, B. absinthifolia, etc.) I am unable to say exactly how the various species are to be divided between Bahia and Schkuhria; but apparently all the many flowered ones must be excluded from the latter.

Amblyopappus pusillus, *Hook. & Arn. in Hook. Jour. Bot.* 3, *p.* 321, (vide *Gray, Pl. Wright*, 1, *p.* 123, *in adn. & Bot. Whippl. Rep. p.* 106.) Infantea Chilensis, *Remy, in Gay, Fl. Chil.* Aromia tenuifolia, *Nutt. in Trans. Amer. Phil. Soc.* 1, *p.* 395. Monterey, California, near the seaside, forming dense clumps; *Parry.*

Villanova chrysanthemoides, *Gray, Pl. Wright*, 2, *p.* 96. Cobre, New Mexico; *Bigelow, Wright.*

Schkuhria Hopkirkia, *Gray, l. c.* Sonora; *Wright.* Seeds only were collected, from which plants were raised for two seasons.

Schkuhria Wrightii, *Gray, l. c.* Sandy soil, between Babocomori and Santa Cruz, Sonora; *Wright, Thurber.*

Amblyolepis setigera, *DC.*; *Gray, l. c.* Plains of Texas, from the Leona to the Pecos and Eagle Pass; *Bigelow, Wright, Schott.*

Riddellia tagetina, *Nutt; Torr. in Emory, Rep. t.* 5. Texas to Sonora; common on the frontier.

Riddellia arachnoidea, *Gray, Pl. Fendl. p.* 94, *& Pl. Wright,* 1, *p.* 121. Common on the Rio Grande, etc., from the Nueces (where it was also gathered by *Berlandier*, No 1041, 2471) to the Mimbres, etc.

Hymenothrix Wislizeni, *Gray, Pl. Fendl. l. c.* Mule Springs, etc., New Mexico, and Sonora; *Bigelow, Wright.*

Hymenothrix? Wrightii, *Gray, Pl. Wright*, 2, *p.* 97. Sonora; *Wright, Schott, Bigelow, Thurber*, mostly in the mountains. New Mexico, at the Cobre, Organ mountains, etc.; *Bigelow.*

Actinolepis multicaulis, *DC. Prodr.* 5, *p.* 655; *Torr. & Gray, Fl.* 2, *p.* 376. (Tab. XXXIII.) Dana's Ranch, below San Luis Obispo, California; *Parry.*

Burrielia lanosa, *Gray, in Bot. Whipp. Rep. p.* 107. Sonora, between Tucson and the Gila; *Parry.* Pappus of 4 long and 4 short paleæ in the disk-flowers, but of five each in the ray.

Burrielia gracilis, *DC. Prodr.* 5, *p.* 664. California, near Monterey, etc.; May; so abundant as to give a yellow appearance to the hills; *Parry.* Mostly rather large forms. In one specimen a slight disposition to have lobes to the leaves appears.

Burrielia chrysostoma, *Torr. & Gray. Fl.* 2, *p.* 379. Hill sides, common from Monterey to San Diego, California. The specimens occur mixed with the preceding, from the larger forms of which they are externally undistinguishable. Unless the more obtuse receptacle affords a character, it will probably come to be regarded as only an epappose state of B. gracilis.

Burrielia platycarpha (sp. nov.): erecta, spithamæa, subramosa, laxe pubescens; foliis sæpissime trifidis segmentisque filiformi-linearibus; pedunculis sursum incrassatis; involucri multiflori squamis ovatis trinerviis ligulisque oblongo-linearibus sæpius 7; corolla imberbi; pappo conformi e paleis 7-8 oblongo-ovatis aristatis achenio æquilongis; receptaculo acute conico.—Valley of the upper Sacramento; *Dr. Sillman.* This is a genuine Burrielia, having the paleæ of the pappus all alike and awned. The scales of the involucre (fully 4 lines long) and the ligules are considerably larger than those of the largest states of B. gracilis and B. (Bäeria) chrysostoma, although fewer. It is related on the one hand to B. gracilis, from which it is a once distinguished by its lobed leaves, stouter peduncles, more upright habit, fewer rays and involucral scales, the latter much broader as well as larger, 3-nerved and more pointed, and by the equally larger and broader as well as more numerous paleæ of the pappus; on the other to B. (Dichæta) Fremontii, which has much smaller heads, a dimorphous pappus of much smaller paleæ, etc.*

Burrielia (Ptilomeris) anthemoides. Ptilomeris anthemoides, *Nutt. in Trans. Amer. Phil. Soc.* 7, *p.* 382. Hymenoxys (Oxypappus) calva, *Torr. & Gray, Fl.* 2, *p.* 381. Grassy places, Monterey, California; *Parry.*

Lasthenia (Hologymne) glabrata, *Lindl. Bot. Reg. t.* 1780. Monterey, California; *Parry.*

Monolopia major, *DC. Prodr.* 6, *p.* 74. Argillaceous hills, San Fernando, beyond Los Angelos, California (a glabrate form); *Parry.*

TRICHOPTILIUM, Nov. Gen.

Capitulum homogamum multiflorum; floribus hermaphroditis tubulosis. Involucrum circiter 10-phyllum, biseriale; squamis æqualibus membranaceis, interioribus glandula apiculatis. Receptaculum nudum, scrobiculatum. Corolla cylindrica; tubo proprio brevi angusto, dentibus 5 patentibus ovatis. Antheræ ecaudatæ. Styli rami compressi, glaberrimi, apice tantum capitellato-truncato brevissime hirtelli. Achenia immatura oblonga, basi angustata, hirsutissima. Pappus corolla brevior, e paleis 5 hyalinis enerviis oblongo-lanceolatis in setas plurimas rigidas profunde fissis. Herba nana, hyemo-annua vel biennis, dichotoma, humifusa, floccoso-lanata, subglandulosa; foliis alternis cuneato-oblongis argute inciso-dentatis lobatisve, dentibus cuspidato-acuminatis; pedunculis terminalibus et alaribus filiformibus monocephalis; corollis ochroleucis?

Trichoptilium incisum, *Gray, Mss.; Torr. in Pacif. R. Road Expl.* 6, *p.* 361, *t.* 5. Psathyrotes incisa, *Gray, Pl. Thurber, p.* 322. On the desert of the Colorado, in the southeastern

* It may be remarked that Mr. Bentham refers No. 1791 of Hartweg's Californian collection to Burrielia (Dichæta) Fremontii; but all the specimens in my set are entirely destitute of pappus, which could not have been the case in those which Mr. Bentham examined. Since the two plants apparently agree in all other particulars, it is most likely that my specimens belong to an epappose state of the species; just as all Nuttall's species of Ptilomeris are probably forms of one. At any rate, it is now certain that Ptilomeris and Dichæta, as well as Bäeria, must be reduced to sections of Burrielia.

part of California, near the Colorado; *Thurber.* Near Fort Yuma; *Lieut. Du Barry.* Only a single specimen of this interesting plant (but in a more advanced state than Mr. Thurber's) was gathered by Lieut. Du Barry, and communicated to Dr. Torrey. The latter pointed out the oversight I had committed in respect to the pappus, and which led me wrongly to refer the plant to Psathyrotes, whereas it technically belongs to the Helenieæ, and adds another genus to that subtribe. The five thin paleæ of the pappus are beautifully dissected into stiff capillary bristles, of which the central one is somewhat the longest, and the rest on each side successively shorter. Involucre loosely very woolly externally; the thin and lax scales oblong and oblong-lanceolate, nerveless, and about as long as the disk.

HULSEA, Torr. & Gray, (Nov. Gen.)

Capitulum multiflorum, radiatum; floribus radii ligulatis fœmineis, disci tubulosis. Involucrum hemisphæricum; squamis subtriseriatis membranaceis laxis, extimis paullo brevioribus. Receptaculum planum, epaleaceum, alveolato-dentatum, dentibus brevibus corneis. Ligulæ 20–30, lineares. Corollæ fl. herm. tubo gracili viscoso-glanduloso, fauce cylindraceæ, limbo 5-dentato, dentibus triangulari-ovatis fere glabris. Antheræ ecaudatæ. Styli rami obtusi, longitrorsum puberuli, exappendiculati. Achenia conformia, linearia, subtetragono-compressa, deorsum attenuata, villosa præsertim ad margines. Pappus (villis achenii vix longior) e paleis 4 tenuibus hyalinis enerviis latis obtusissimis erosis vel fimbriatis. Herbæ perennes, viscoso-pubescentes, macrocephalæ, alternifoliæ; caule florifero sub-aphyllo; floribus flavis.

H. Californica (*Torr. & Gray*): elata; caule vel pedunculo 3–7-cephalo; involucri squamis linearibus apice attenuatis; floribus aureis; ligulis sæpe filamentis sterilibus instructis; pappi paleis cuneato-rotundis apice truncato eroso-denticulatis.—Mountains east of San Diego, California, in bushy places, June; *Parry.* A portion of the inflorescence was alone gathered of this interesting plant, apparently a branch of a tall herb, with the alternate leaves reduced to ovate-lanceolate and sessile bracts, of about half an inch in length. The paniculate or subcorymbose heads are about as large as those of Arnica montana. Ligules half an inch long. Disk-flowers perhaps 100. Achenia 3 lines long, blackish, minutely striate on each face, also villous (but much more so on the margins) with long and thick hairs. Pappus of four nearly equal, thin, and hyaline paleæ, of less than a line in length, much shorter than the tube of the corolla. Foliage, etc., unknown. The genus is dedicated to G. W. Hulse, M. D., of Louisiana, late a surgeon of the United States army, and a zealous cultivator of botany, to whom we are indebted for many interesting plants of Florida, California, etc. Since its establishment upon a single and incomplete specimen, a second species has been detected by Dr. Newberry (H. nana, *Gray in Pacific R. R. Report*, 6, *p.* 76, *t.* 13,) confirming the genus. The broad and flat receptacle and the elongated compressed achenia are remarkable in the Helenieæ, subdiv. Euhelenieæ, to which the genus is to be referred.

Helenium autumnale, *Linn.* Texas; west to the San Pedro; *Bigelow.*

Helenium puberulum, *DC. Prodr.* 5, *p.* 667; *Torr. & Gray, Fl.* 2, *p.* 385. California; not uncommon. Rio Fronteras, Sonora; *Thurber.*

Helenium tenuifolium, *Nutt; Torr. & Gray, l. c.* Sonora; *Capt. Smith.*

Helenium microcephalum, *DC. l. c.* Sandy moist places, Presidio del Norte, Van Horne's

Wells, etc., *Bigelow*. This species includes De Candolle's H. elegans and his H. heterophyllum, at least in part, viz: No. 2113 of Berlandier's collection, which is from Reynosa. De Candolle also cites Berlandier's No. 107 and No. 190, and the habitat Tampico. I have no specimens from that station. From these the character, "pappi paleis breviter aristatis," may have been drawn. But in those from Reynosa the paleæ are very obtuse and pointless, just as in H. microcephalum.

ACTINELLA RICHARDSONII, *Nutt.; Gray, Pl. Fendl., p.* 101. New Mexico and western Texas, abounding on stony hills.

ACTINELLA ODORATA, *Gray, l. c., & Pl. Wright. l. c.* From the lower Rio Grande to Sonora, the Gila, etc.; *Parry, Bigelow, Schott.* "Limonillo" of the Sonorians.

ACTINELLA CHRYSANTHEMOIDES, *H. B. K.; Gray, Pl. Wright.* 1, *p.* 122, *adn.* Soccoso, Sonora; *Bigelow.*

ACTINELLA SCAPOSA, *Nutt.*; *Gray, l. c., & in Bot. Whippl. Rep. p.* 108. Gravelly or rocky hills, throughout western Texas and New Mexico; in diverse forms.

ACTINELLA ARGENTEA, *Gray, Pl. Fendl. l. c.* On the Mimbres; *Bigelow, Dr. Henry.*

ACTINELLA BIGELOVII, *Gray, Pl. Wright.* 2, *p.* 96, *adn.* New Mexico, on Ben More, and near the Cobre, etc.; *Bigelow.*

ACTINELLA LINEARIFOLIA, *Torr. & Gray, Fl.* 2, *p.* 382. Western Texas to El Paso and Eagle Pass, etc.; in various forms.

TRIDAX BICOLOR, *Gray, Pl. Fendl. p.* 104. Bachimba, Chihuahua; *Thurber.* Plant taller than the specimens of Wislizenus, a foot or two high; the upper leaves alternate and on pretty long petioles; head larger than in *T. procumbens*; rays rose purple; pappus not tinged with purple.

GALINSOGA PARVIFLORA, *Cav.;* var. CARACASANA, and var. SEMICALVA; *Gray, Pl. Wright,* 2, *p.* 98. Cobre, New Mexico; *Wright.*

ACHYRACHÆNA MOLLIS, *Schauer; DC. Prodr.* 7, *p.* 292. Monterey, California; in grassy places; *Parry, etc*

LAYIA (CALLICHROA) PLATYGLOSSA, *Gray, Pl. Fendl., p.* 103. California, San Pasqual; *Thurber.* Monterey, etc.; *Parry.* Colorado desert; *Schott.*

LAYIA (CALLIACHYRIS) FREMONTII, *Gray, Pl. Fendl. l. c.* Upper Sacramento, California; *Dr. Stillman.*

LAYIA (MADAROGLOSSA) HETEROTRICHA, *Hook. & Arn. Bot. Beech.; Gray, l. c.* Dana's Ranch, below San Luis Obispo, California; in dry gravelly soil; *Parry.*

LAYIA (MADAROGLOSSA) HIERACIOIDES, *Hook. & Arn. l. c.* San Juan Battista, near Monterey, California; *Parry.* Remarkable for its very short rays.

LAYIA (MADAROGLOSSA) CARNOSA, *Nutt. in Torr. & Gray, Fl.* 2, *p.* 394. Sea beach, Monterey, California; *Parry.* The very small rays appear to be white.

LAYIA (MADAROGLOSSA) NEO-MEXICANA, *Gray, Pl. Wright.* 2, *p.* 98. New Mexico; *Bigelow.* Tucson, Chihuahua; *Parry.* The pappus is not always present in the ray-flowers.

OXYURA CHRYSANTHEMOIDES, *DC. Prodr.* 5, *p.* 693. Monterey, California; May; on grassy hill sides.

HEMIZONIA FASCICULATA, *Torr. & Gray, Fl.* 2, *p.* 397. Hartmannia fasciculata, *DC. Prodr.* 5, *p.* 693. Dry plains, San Diego, California; *Parry, Schott, Thurber.* Covers large tracts, and exhales a strong balsamic odor.

Hemizonia ramosissima, *Benth. Bot. Voy. Sulph. p.* 30. Santa Barbara and San Diego, California; *Schott, Fitch.* This appears to be a common Californian plant, of somewhat variable mode of growth. Mr. Fitch's specimen is the same as Frémont's, marked R and S in his coll. of 1846; as No. 361 of Coulter's Californian collection; and as the *H. fasciculata* of Nuttall, in herb. Hook; (of Gambell's collection, a stricter and smoother form); I believe it is also Bentham's H. ramosissima. The sessile or stipitate glands are sometimes abundant, but not rarely wanting or nearly so. I may remark that to H. angustifolia, *DC.*, (which has no pappus at all, at least in Douglas's specimens,) belongs the H. multicaulis, *Hook. & Arn. Bot. Beech. Voy. Suppl., p.* 355; the No. 305 of Coulter's Californian collection; H. decumbens, *Nutt. Pl. Gamb. p.* 175; and apparently the same as specimens gathered near Monterey by Mr. Barclay, although their disk-flowers show a minute pappus. But No. 1797 of Hartweg's collection, referred by Mr. Bentham to H. angustifolia, is exactly H. corymbosa (Hartmannia corymbosa, *DC.*) H. macrocephala, *Nutt. Pl. Gamb. l. c.*, appears to be the same species. H. congesta, *DC.*, is to be distinguished from Madaria chiefly by the shape of the fertile achenia; as noted in the Botany of Whipple's Report.*

Calycadenia (Osmadenia) tenella, *Torr. & Gray, Fl.* 2, *p.* 402. Osmadenia tenella, *Nutt.* Dry places near San Diego, California; *Parry, etc.*; June. Subjoined are the characters of two new species, from Frémont's Californian collection of 1846.† They belong to Nuttall's Osmadenia, but have the glands of Calycadenia on the floral and young fascicled leaves, and

*Besides H. Fitchii, recently published in Whipple's Report, there is another extremely well marked species of Hemizonia in Colonel Frémont's collection, the characters of which are subjoined:

Hemizonia virgata (sp. nov.): subglabra; caulibus e radice annua ramisve simplicibus gracilibus; foliis linearibus, inferioribus inciso-dentatis basi longe attenuatis, superioribus integerrimis, summis minimis apice glanduloso-truncatis; capitulis oblongis in axillis solitariis subsessilibus vel plerumque ramulos breves foliosos desinentibus racemum virgatum efficientibus; involucri squamis circiter 5 ovatis membranaceis cum paleis extimis receptaculi glandulis stipitatis mollibus dorso muricatis; floribus ut videtur luteis, radii 5 ligula cuneato-rotunda apice triloba, disci 10 sterilibus, singulis palea oblonga glanduloso-mucronata amplexatis epapposis; acheniis radii fertilibus obovatis lævibus basi substipitatis apice intus breviter rostratis.—California, probably on the Sacramento; *Col. Frémont.*—Stems a foot or more high. Lower cauline leaves two inches long, the upper ones an inch or less in length and barely a line wide; those fascicled in the axils or crowded on the floral branchlets 1–2 lines wide, spreading; their truncate apex glandular. Heads 3 lines long. Scales of the involucre ovate, cymbiform, half inclosing the fertile achenia, glabrous, beset externally with long and soft glandular-tipped but truncate spreading processes. Ligules 2 lines long and the same width, on a glandular tube of a line in length. Disk-flowers slightly glandular, their infertile ovaries glabrous, destitute of pappus. Receptacle chaffy thoughout; the paleæ distinct, membranaceous.

†Calycadenia Fremontii (sp. nov.): caule humili superne parce paniculato-ramoso et hirsuto; foliis anguste linearibus scabris basi setoso-hispidis, caulinis eglandulosis, floralibus apice sæpe glandulam claviformem breviter stipitatam gerentibus; capitulis solitariis terminalibus axillaribusque subsessillibus; ligulis 5–7 tripartitis, segmentis tubulo brevissimo glabra 2–3-plo longioribus; disco circiter 20-floro; paleis receptaculi 12 et ultra oblongis obtusis vix glutinosis connatis; lobis corollarum disci ovatis; acheniis radii lævibus utrinque obtusis, disci hirsutulis pappo 10-paleaceo (paleis alternis subulato-productis) aequilongis.—California, (the particular station not recorded;) *Col. Fremont.* Stems a span high, from an annual root, erect, rather slender; the branches are not glandular nor glutinous. Cauline leaves an inch or more in length, the lower opposite. Heads few, larger, and with many more flowers than in C. tenella; also with much ampler ligules, (though the tubular portion is very much shorter,) their obovate or oblong segments 3 lines long. Nor are the tinged and perfectly smooth and even ray achenia at all apiculate at either end. The pappus of the (apparently fertile) disk-achenia resembles that of C. tenella, its longer and subulate scales being only half the length of the corolla, and not longer than the achenium itself.

Calycadenia pauciflora (sp. nov.): caule paniculato-ramoso glabello; ramis floriferis diffusis filiformibus flexuosis capitula solitaria subsessilia ad nodos singulos gerentibus; foliis anguste linearibus scabris inferne setoso-ciliatis, floralibus cum iis in axillis fasiculatis brevibus glandula claviformi superatis; radio uni-ligulato, lobis ligulæ tripartitæ tubulo duplo longioribus; disco

one of them has short and broad lobes to the corolla of the disk. The glands are manifestly not of generic importance; and as in habit there is no longer a marked distinction, it will be evident, on comparing the characters of C. Fremontii with those of the two new Hemizoniæ above described, that it is becoming increasingly difficult to preserve Calycadenia as a genus.

Lagophylla dichotoma, *Benth. Pl. Hartw. p.* 317. On the Sacramento, California; *Rev. Mr. Fitch.* Branchlets only; rays evidently yellow. The genus is distinguished from Hemizonia by the obcompressed fertile achenia, completely enclosed by the involucral scales, and by the cuneiform, deeply trifid rays. The habit also is peculiar. Yet, perhaps, it may be found to pass into Hemizonia; though it is more distinct than Calycadenia.

Lagophylla filipes, *Gray in Bot. Whippl. Rep. p.* 109, *adn.* Hemizonia filipes, *Hook. & Arn. Bot. Beech. Voy. Suppl. p.* 356. On the Sacramento, California; *Rev. Mr. Fitch.* The specimens are merely in flower. I suspect that in the achenia, no less than in other characters, as well as in habit, the plant will accord with *Lagophylla,* and thus raise that genus to three known species. The receptacle is not chaffy in the centre. The small rays are three-parted nearly to the base.

Madia sativa, *Molina.* In springy places, California, near Monterey; April.

Harpæcarpus exiguus: tenellus, diffusus; pedunculis filiformibus; paleis receptaculi 3 in cupulam florem hermaphroditum includentem coalitis; acheniis haud rostratris.—Sclerocarpus exiguus, *Smith in Rees Cycl.; Hook. & Arn. Bot. Beech, Voy. p* 355, *adn.* California, (probably Mariposa county,) *Rev. Mr. Fitch.* Plant 2 to 4 inches high, including the fruit-bearing peduncles (which are an inch or more long); the branches diffuse. Root annual. Leaves from a quarter to half an inch long. Heads little over a line long, with 4 to 7 ray-flowers, and a single hermaphrodite one, which is inclosed in a cup formed of only three paleæ. Besides this character, and the diminutive size and diffuse habit of this plant, it differs from H. madarioides, *Nutt.*, of Oregon, in the less falcate ray-achenia, of barely a line in length (only half the size of those of the other species), the apex of which is obtusely apiculate, but not at all rostrate. H. madarioides has, when young, a simple and strict stem, leaves of one or two inches in length, and, according to Nuttall, sometimes attains the height of 2 feet.

Coinogyne carnosa, *Less.; DC. Prodr.* 6, *p.* 42. Salt places and seashore near San Diego California; *Parry.* The genus should stand next to Jaumea, in the Heleniеæ, from which it differs principally in the want of the pappus.

Baileya pauciradiata, *Harv. & Gray, in Pl. Fendl. p.* 105. Diluvial banks of the Colorado, Sonora; February, 1855; *Schott.* These are the only specimens of this plant I have seen, excepting the original ones in Coulter's collection. They possess the lower cauline and radical leaves, which are pinnatifid, with few and unequal linear lobes, some of them 1–2-toothed or lobed. The root is that of a biennial or winter annual.

Baileya pleniradiata, *Harv. & Gray, l. c., & Pl. Wright. l. c.* Very common from the Rio Grande to the Colorado, Sonora, etc.

tripaleato trifloro, corollæ lobis oblongis; achenio radio lævi obtuso, iis disci hirsutulis pappo 10-paleaceo (paleis alternis subulato-productis) longioribus.—California; *Col. Frémont.* This species presents nearly the habit of C. tenella, except that the prolonged branches are simple or sparingly forked, and bear lateral nearly sessile heads; and they are scarcely, if at all, glandular or viscid. The heads are still smaller. or at least narrower, and, as far as examined, have unformly only one ray and three disk flowers; the latter surrounded by a cup formed of the thin coalescent paleæ. Pappus nearly as in C. Fremontii. Ray-achenium rather acute at the base, but the summit not at all apiculate.

BAILEYA MULTIRADIATA, *Harv. & Gray, l. c.; Pl. Wright. l. c.* Sandy places, with the same range as the foregoing, which may probably pass into it.

MATRICARIA DISCOIDEA, *DC. Prodr.* 6, *p.* 37; *Torr. & Gray, Fl.* 2, *p.* 413. A common weed in the streets of Monterey and elsewhere in California, appearing as if introduced; *Parry.*

ACHILLEA MILLEFOLIUM, *Linn.* Cobre, New Mexico; *Bigelow, Wright.*

VARILLA TEXANA, *Gray, Pl. Wright.* 1, *p.* 123. Plains and grassy places near Eagle Pass on the Rio Grande; *Bigelow, Parry, Thurber.*

ARTEMISIA CALIFORNICA, *Less. in Linnæa,* 6, *p.* 523. San Diego and San Luis Rey, California, where it abounds exceedingly; *Parry, etc.*

ARTEMISIA DRACUNCULOIDES, *Pursh; Gray, Pl. Wright. l. c.* Hills at the Cobre, New Mexico; *Wright, Bigelow.* On the Pecos, Texas; *Thurber.*

ARTEMISIA CANADENSIS, *Michx.; Torr. & Gray, Fl.* 2, *p.* 417. With the last.

ARTEMISIA FILIFOLIA, *Torr.; Torr. & Gray, l. c.; Torr. in Marcy Rep. t.* 12. Common in bottom land, from below El Paso to the Cobre, etc.

ARTEMISIA LUDOVICIANA, *Nutt.; Torr. & Gray, l. c.* Very common, and in various forms; including A. Douglasiana and A. Mexicana.

GNAPHALIUM CALIFORNICUM, *DC. Prodr.* 6, *p.* 224. San Diego, California; *Thurber.*

GNAPHALIUM LUTEO-ALBUM, *Linn.* Sandy low places, from the Nueces and Rio Grande, Texas to Sonora.

GNAPHALIUM SPRENGELII, *Hook. & Arn; Gray, Pl. Wright.* 1, *p.* 124, & 2, *p.* 99. Hills, etc., from the Limpio, Cobre, etc., to Sonora and California.

GNAPHALIUM LEUCOCEPHALUM, *Gray, Pl. Wright.* 2, *p.* 99. Bed of mountain torrents, near Santa Cruz, Sonora; *Wright, Thurber.*

GNAPHALIUM MICROCEPHALUM, *Nutt.? Gray, Pl. Wright. l. c.* Cobre, New Mexico; *Wright.*

GNAPHALIUM PALUSTRE, *Nutt.; Torr. & Gray,* 2, *p.* 427. California; *Rev. Mr. Fitch,* etc. On the Colorado of the West; *Schott.*

ANTENNARIA DIOICA, *Gærtn.* Cobre, New Mexico; *Bigelow.*

FILAGO CALIFORNICA, *Nutt.; Torr. & Gray, l. c.* San Isabel, California; *Thurber.* On the Sacramento; *Rev. Mr. Fitch.*

CROCIDIUM MULTICAULE, *Hook. Fl. Bor.-Amer.* 1, *t.* 118. On the upper Sacramento, California; *Dr. Stillman.*

ARNICA DISCOIDEA, *Benth. Pl. Hartw. p.* 319. Monterey, California, in woods and ravines; May; *Parry.* A form with even the upper leaves all opposite or nearly so.

BARTLETTIA SCAPOSA, *Gray, Pl. Thurber, p.* 323. On a prairie near Corralitas, Chihuahua; August; *Thurber.*

PSATHYROTES ANNUA, *Gray, Pl. Wright.* 2, *p.* 100, & *Pl. Thurber, p.* 323. Bulbostylis (Psathyrotes) annua, *Nutt. Pl. Gambell.* Tetradymia (Polydymia) ramosissima, *Torr. in Emory, Rep. p.* 145. Colorado desert, California; *Schott.* Big-horn mountain, on the Gila; *Thurber.* "Flowers bright yellow. Foliage aromatic."

PSATHYROTES SCAPOSA, *Gray, Pl. Wright.* 2 *p.* 100, *t.* 13. Gravelly hills near El Paso, and Santa Maria, Chihuahua; *Wright, Bigelow.* Kioway crossing of the Rio Grande, near the Chisos mountains; *Parry.*

HAPLÖESTHES GREGGII, *Gray, Pl. Fendl. p.* 109. Along the Rio Grande below El Paso; *Parry,*

Bigelow. The accessory nerves are wanting in the disk-corollas of Dr. Bigelow's specimens, and the rays are narrower and entire, not three-toothed as in Gregg's.

SENECIO MULTILOBATUS, *Torr. & Gray, in Pl. Fendl. p.* 109. Monterey, California, May; *Parry.*

SENECIO CORONOPUS, *Nutt.; Torr. & Gray, Fl.* 2, *p.* 437. San Luis Rey, February, on dry hill sides; *Parry.*

SENECIO TAMPICANUS, *DC. Prodr.* 6, *p.* 427. On the Limpio, Smith's Run, Rock Creek, White Rock Mountains, near the Rio Grande, etc.; *Bigelow, Wright, Parry.*

SENECIO LOBATUS, *Pers.* Low banks or beds of rivers, from Laredo to Frontera and the Santa Maria in Chihuahua.

SENECIO RIDDELLII, *Torr. & Gray, Fl.* 2, *p.* 444. On the Lower Rio Grande; *Schott.*

SENECIO LONGILOBUS, *Benth. Pl. Hartw. p.* 18. Gravelly hills, Arroyas, etc., on the Rio Grande above Presidio, to Chihuahua and Sonora. In very various forms.

SENECIO FILIFOLIUS, *Nutt.; Torr. & Gray, l. c.* On the Leona and Nueces, Texas.

SENECIO AUREUS, *Linn.*, var. BOREALIS, *Torr. & Gray, l. c.* Organ Mountains; *Wright, etc.*

SENECIO CANUS, *Hook.*, var. PYGMÆA, foliis angustissimis. Cobre, on mountains and hill sides; *Thurber, Bigelow.*

SENECIO FASTIGIATUS, *Nutt.; Gray, Pl. Wright.* 2, *p.* 99. Cobre, Mimbres, etc., New Mexico; *Wright, Bigelow, etc.*

SENECIO PARRYI (sp. nov.): herbaceus, viscoso-pubescens; caule striato; ramis oligocephalis; foliis argute inæqualiter dentatis, caulinis spathulatis inferne longe attenuatis basi dilatata auriculato-amplexantibus, ramealibus summis lanceolatis; bracteis setaceo-subulatis; capitulis breviter pedunculatis; involucri (semipollicari) paucibracteolati squamis acuminatis; ligulis 12–15; acheniis sericeo-cinereis —In live-oak groves, 150 miles above the mouth of the Pecos, on the Mexican side of the Rio Grande, November; *Parry.* Root not seen. Stem, etc., slightly floccose when young Cauline leaves 2 inches or more in length. Ligules oblong, yellow, half an inch long.

CACALIA DECOMPOSITA, *Gray, Pl. Wright.* 2, *p.* 99. Mountains east of Santa Cruz, Sonora; *Wright.*

CENTAUREA AMERICANA, *Nutt.* Sandy soil etc. from the Lower Rio Grande to Chihuahua. C. Mexicana, *DC.*, is the same thing.

CIRSIUM WRIGHTII, *Gray, Pl. Wright.* 2, *p.* 101. Around springs, San Bernardino, New Mexico; *Wright.* Comanche springs; *Bigelow.*

CIRSIUM VIRGINIANUM, *Michx.* var. Low grounds, Escondido springs; *Wright.* Rio Grande; *Schott, etc.*

CIRSIUM UNDULATUM, *Nutt; Gray, Pl. Wright. l. c.* W. Texas to the Limpio, and to Sonora, etc. In various forms, probably including C. ochrocentrum, *Gray, Pl. Fendl. p.* 110, *& Pl., Wright,* 2, *p.* 101.

CIRSIUM NEO-MEXICANUM, *Gray, Pl. Wright.* 2, *p.* 101. Organ mountains and Cobre, New Mexico; *Wright, Bigelow.* Cooke's spring; *Thurber.*

CIRSIUM GRAHAMII, *Gray, Pl. Wright.* 2, *p.* 102. In swamps, between the Sonoita and San Pedro, Sonora; *Wright, Thurber.*

CIRSIUM COULTERI, *Harv. & Gray, Pl. Fendl. p.* 110? Monterey, California; *Parry.*

MOQUINIA HYPOLEUCA, *DC. Prodr.* 7, *p.* 22. Mountain pass, near Parras, *Thurber.* This is No. 1391 and 2358 of Berlandier's collection, who records its vernacular name as "Ocotillo."

TRIXIS FRUTESCENS, *P. Browne; DC. Prodr.* 7, *p.* 68; var. angustifolia, et foliis sericeo-

pubescentibus, argute denticulatis; involucri superne sensim attenuatis acutis.—Among rocks, Bachimba, Chihuahua; *Thurber.* Ringgold's Barrack, on the Rio Grande, Texas; *Schott.* Var. ANGUSIIFOLIA; foliis lato vel angusto-lanceolatis margine plerumque revolutis subsericeis sæpius integerrimis. T. angustifolia, *Gray, Pl. Wright.* 1, *p.* 128, *&* 2, *p.* 102. Ravines, Santa Cruz, Sonora; El Paso and Flounce mountains, New Mexico; *Wright, Parry, Bigelow.* Schultz, Bip. (in *Botany of the Herald, p.* 314) refers these all to T. frutescens, which may well be the case if that species includes forms with thickish and silky pubescent leaves as well as tapering acute scales of the involucre; but, on the other hand these narrow-leaved varieties quite as clearly run into T. angustifolia, *DC.* (Berlandier's No. 1284 and 1353,) which Schultz keeps separate. The latter belong to an arid region, and certainly look widely different from Berlandier's No. 2100 and 2230, which I had supposed to answer to the type of T. frutescens.

PEREZIA THURBERI, *Gray, Pl. Thurber, p.* 324. Rocky hills, near Santa Cruz, Sonora; *Thurber.* Dr. Schultz has recently referred Perezia to Trixis, perhaps with reason, as it is difficult to draw a limit between them.

PEREZIA WRIGHTII, *Gray, Pl. Wright.* 1, *p.* 127. On the Rio Grande, Rio Frio, Limpio, etc.; *Wright, Bigelow, Parry, Schott, Thurber.*

PEREZIA NANA, *Gray, Pl. Fendl. p.* 111, *& Pl. Wright. l. c.* Gavelly or rocky hills, from the Rio Grande, Texas, to the San Pedro, Sonora. The name is not always appropriate, as the plant is sometimes a foot high.

PEREZIA RUNCINATA, *Gray, l. c.* From the lower Rio Grande to Chihuahua. The fascicled roots become tuberous-thickened below, like those of a Peony or Dahlia.*

LERIA NUTANS, *DC.* Western and southern Texas, to the Rio Grande.

CALAIS LINEARIFOLIA, *DC. Prodr.* 7, *p.* 85; *Gray, Pl. Wright.* 2, *p.* 102. Near San Diego, California; *Parry.* New Mexico on the Rio Grande, Organ mountains, and Lake Gusman; *Wright, Bigelow.* Guadalupe cañon, Sonora; *Capt. Smith.*

CALAIS PARRYI, (*Gray, in Bot. Whippl. Rep. p.* 112, *adn.*): scaposa, fere glabra; foliis lineari-lanceolatis sæpius pinnatifido-laciniatis; involucri squamis triseriatis ovatis oblongisve subobtusis, exterioribus gradatim brevioribus; ovariis lævibus; pappi paleis oblongis apice bifidis arista e sinu exserente barbellato-scabra dimidio brevioribus.—Near San Diego, California; March; *Parry.* The specimens are too young to give the complete characters. The plant belongs to the section *Calocalais,* and in the pappus most resembles C. macrochæta, *Gray, Pl. Fendl.*; but the scales of the involucre are much broader and blunt, and the awn of the pappus is shorter and more denticulate; the leaves also are shorter and mostly obtuse. In C. macrochæta, the scales of the involucre are lanceolate and gradually very taper-pointed; and the slender awn is scarcely scabrous.

CALAIS DOUGLASII, *DC. Prodr.* 7, *p.* 85. Near San Diego, California, March; *Parry.* Very

*In Berlandier's *reliquiæ* I find still another Perezia viz:

PEREZIA THYRSOIDEA (sp. nov.): glanduloso-scabrida; ramis floridis strictis; foliis confertis subimbricatis oblongis ovatisve utrinque angustatis pungenti-acutis basi sessili vix aut ne vix amplexicaulibus rigidis spinuloso-serrulatis reticulatis subtus præsertim glanduloso-puberulis; ramulis 3–5-cephalis brevibus folia parva integerrima bracteiformia gerentibus in thyrsum elongatum spiciforme congestis; involucro cylindrico 10-12-floro; squamis lineari-lanceolatis sensim subulato-acuminatis appressis, intimis pappo rigidulo copioso (haud clavellato) æquilongis.—Guanaxuato, Mexico, No. 1329. Base of the stem not seen, nor the leaves much below those which bear flowering branchlets in their axils. Lowest leaves seen 2½ inches long, gradually decreasing to an inch, and shorter than the flowering branchlets they subtend: these altogether form a dense and elongated thyrsus of a foot or so in length. Heads 9 or 10 lines long Scales of the involucre glandular, imbricated in several series, the exterior passing into bractlets. Pappus whitish, pluriserial. This can hardly be the Perezia moschata of Lallav. and Lex, or any other described species.

small and imperfect specimens. Exterior achenia hirsute, as stated by Nuttall, not the inner, as described by Hooker and Arnott.

CALAIS PLATYCARPHA (*Gray, in Bot., Whippl. Rep. p.* 113 & 114,): scaposa; foliis pinnatipartitis (vel integris?) glabris; involucro calyculato; acheniis immaturis brevibus truncatis, paucis extimis villosis; pappi paleis orbiculatis seu latissime ovalibus integerrimis apice subito brevi-aristatis.—On clay hills, San Luis Rey, California; *Parry*. The specimen, although too young, affords characters which well distinguish this from the cognate C. Douglasii. The leaves are cut into numerous short and crowded lobes, and are as long as the young scapes. Involucre only 4 lines long, consisting of 8 or 10 oblong and rather obtuse scales of equal length, and of a few short calyculate scales. The young achenia are oblong, rather clavate, and largest at the truncate apex; it is not likely that they become rostrate or even tapering at the apex. Some of the exterior ones are hairy, more so than in C. Douglasii; the others are glabrous, except a minute papillose pubescence on the ribs. Paleæ of the pappus 5, nearly 3 lines long, fully 2 lines wide, entire, the midrib abruptly exserted into a scabrous awn of only one-third the length of the scale itself.

HEMIPTILIUM, Nov. Gen.

Capitula et habitus Stephanomeriæ. Achenia angulata, utrinque truncata, costata, costis 5—10 tuberculatis. Pappus 5–15-paleatus; paleis lineari-lanceolatis vel setiformibus inferne nudis, apicem versus breviter plumosis.—Herbæ graciles, annuæ vel biennes, glabræ, paniculato-ramosissimæ; ramis fere aphyllis; floribus roseis? Species 2, nempe:

HEMPITILIUM SCHOTTII (sp. nov.): capitulis parvis 5-floris; acheniis 5–6-angulatis pluricostatis, costis tuberculoso-scabris; pappi paleis 5–6 rigidis lineari-lanceolatis obtusiusculis achenio haud longioribus infra medium nudis marginibus leviter scariosis.—Camp Miller, valley of the Gila; May, 1855; *Schott*. Only branchlets or branches were collected; these bear merely small subulate bracts in place of leaves, and racemose-panicled small heads. Involucre only 3 lines long. Branches of the style clavate, glabrous. Color of the flowers not recorded. Achenia 1½ line long: pappus of rigid paleæ, persistent or nearly so; the plumose hairs borne at the upper part not much longer than the breadth of the palea. The plant resembles Stephanomeria paniculata in aspect.

HEMIPTILIUM BIGELOVII (sp. nov.): caule paniculato-ramosissimo e radice annua seu bienni; foliis radicalibus linearibus subpinnatifidis, rameis vix ullis; capitulis 6–9-floris; acheniis 5-costatis, costis validis rugoso-tuberculatis; pappo achenio duplo longiore e setis fragilibus 12–15 basi dilatatis rariter denticulatis vel setulosis medio gracillimis nudis versus apicem barbellato-plumosis.—Frontera, New Mexico; *Bigelow*. Plant with the aspect of Stephanomeria minor, (with which it has probably been confounded,) but perhaps more upright. Involucre 4 or 5 lines long; the ligules exserted to about the same length, apparently white or rose-color. Achenia with thick corky ribs, or strong angles. Pappus white, fragile, at the summit appearing like that of a Stephanomeria, although rather less plumose, but naked below, and paleaceous at the base.

STEPHANOMERIA MINOR, *Nutt.; Gray, in Whippl. Rep. p.* 114. S. minor & S. runcinata, *Nutt.: Gray, Pl. Wright.* etc. Gravelly and rocky soil, from the Pecos, western Texas, to the Colorado of the West.

·STEPHANOMERIA THURBERI, *Gray, Pl. Thurber, p.* 325. Sierra de los Animos, Sonora; *Thurber*. On the Santa Cruz river; *Captain Smith*. Near the Cobre and Mimbres, New Mexico; *Bigelow*,

Dr. Henry. Heads large, 17–20-flowered, with pink and fragrant flowers. Bristles of the pappus 25–30.

RAFINESQUIA NEO-MEXICANA, *Gray, Pl. Wright.* 2, *p.* 2, *& p.* 103. Gravelly hills near El Paso, etc., New Mexico; *Bigelow, Wright, Parry.* Cook's Spring; *Bigelow.*

RAFINESQUIA CALIFORNICA, *Nutt. in Trans. Amer. Phil. Soc.* 7, *p.* 429. (TAB. XXXIV.) Oak groves, Monterey, California; *Parry.* Found also by Frémont on the Mohave river and in other parts of California. Some of the mature achenia (usually the exterior ones) have a mottled appearance, as represented in one of the figures.

CALYCOSERIS PARRYI (sp. nov.): involucro polyphyllo subimbricato; floribus flavis; acheniis longe rostratis, costis lævibus acute trinervatis.—Mountains east of Monterey, California; June; *Parry.* Only a single specimen was gathered, and that consists merely of the upper part of the plant, with reduced foliage. It is most interesting, however, as adding a second species to the genus Calycoseris, being a strict congener of the New Mexican C. Wrightii. It is distinguished by its yellow flowers, rather larger heads, more numerous scales to the involucre, of which there are likewise a few external and shorter scales, effecting a transition into the smaller calyculate ones, which are more pointed and mostly squarrose-recurved; the scales, as well as the peduncles and branchlets, are more conspicuously beset with similar setose-pedicellate glands, which here are blackish. More important characters are afforded by the achenia; these are more slender and rather longer; the strong ribs are not so thick, and are smooth or even, (while in C. Wrightii they are tuberculate-roughened, a character by no means sufficiently represented in the plate,) each with a sharp and salient dorsal nerve or keel, and with a less conspicuous lateral one on each side; and the slender beak is as long as the body of the achenium.

CALYCOSERIS WRIGHTII, *Gray, Pl. Wright.* 2, *p.* 104, *t.* 14. Low hills and alluvial banks of the Rio Grande, and elsewhere in New Mexico; gathered by all the collectors. Guadalupe cañon, Sonora; *Capt. Smith.*

PINAROPAPPUS ROSEUS, *Less.* Not rare in western and southern Texas, in Sonora, etc.

MALACOTHRIX CALIFORNICA, *DC. Prodr.* 1, *p.* 192. In rather dry grassy places, Monterey, California; *Parry.*

MALACOTHRIX? COULTERI, *Harv. & Gray, Pl. Fendl. p.* 113, *adn.* On the Sacramento? California; *Rev. Mr. Fitch.* One or two small bunches merely, throwing no more light upon this plant.

MALACOTHRIX OBTUSA, *Benth. Pl. Hartw. p.* 321. Monterey, California; *Parry.*

MALICOTHRIX TENUIFOLIA, *Nutt. in Trans. Amer. Phil. Soc. n. ser.* 1, *p.* 435, ex char. Valley of the Gila, at Camp Miller; May, 1855; *Schott.* The same as Coulter's No 246, and apparently Nuttall's plant. But it is herbaceous, except perhaps the very base, and the nascent shoots and young involucral scales are canescent with a stellate tomentum, which is soon deciduous. From three to five of the bristles of the pappus are more persistent and naked.

MALACOTHRIX FENDLERI, *Gray, Pl. Wright.* 2, *p.* 104. Along the Rio Grande, at El Paso, and elsewhere; *Bigelow, Wright,* etc. Guadalupe cañon, Sonora; *Capt. E. K. Smith.*

PYRROPAPPUS CAROLINIANUS, *DC. Prodr.* 7, *p.* 44. From the lower Rio Grande, Texas, to the Santa Cruz river, Sonora; *Schott, Capt. Smith.*

MACRORHYNCHUS HETEROPHYLLUS, *Nutt.; Gray in Whippl. Rep. p.* 115. M. Californicus, *Torr. & Gray.* (Cryptopleura Californica, *Nutt.*) M. Chilensis, *Hook. & Arn.* Monterey and elsewhere in California; *Parry,* etc.

Macrorhynchus Lessingii, *Hook. & Arn. Bot. Beech. p.* 361. Sea-beach at Monterey, California; April; *Parry.* The specimen is in too early a state for proper investigation, but it has a thick root, and very obtuse or rounded exterior scales of the involucre. Perhaps M. grandiflorus, *Nutt.* (which is known only in fruit) is a fully developed state of it.

Prenanthes? exigua, *Gray, Pl. Wright.* 2, *p.* 105. Hills near El Paso, etc.; *Wright, Bigelow.*

Lygodesmia aphylla, *DC.*, var. Texana, *Torr. & Gray, Fl.* 2, *p.* 485. Common on plains from San Antonio, Texas, nearly to the Rio Grande, New Mexico. The stems bear long leaves towards the base.

Mulgedinum pulchellum, *Nutt.; Torr. & Gray, l. c.* Plains, from the Limpio to the Rio Grande, and Cobre, New Mexico.

Sonchus oleraceus, *Linn.* Alluvial borders of the Rio Grande; *Schott, Bigelow.*

Sonchus asper, *Vill.* Along the Gila; *Schott.* Cobre, New Mexico; *Bigelow.*

Crepis ambigua, *Gray, Pl. Fendl. p.* 114, & *Pl. Wright.* 2, *p.* 106. Organ mountains, New Mexico; *Wright.*

Hieracium longipilum, *Torr.*; *Torr. & Gray, Fl.* 2, *p.* 477. White-Rock mountain, head of Rock creek, western Texas; *Bigelow;* July.

LOBELIACEÆ.

Lobelia pectinata, *Engelm. in Wisliz. Rep. p.* 108. L. fenestralis, *Cav.?* Sonora, September; *Thurber, Schott.* (No. 420 and 1430, *Wright.*) The plant of Cavanilles is said to be perennial, while ours is certainly annual.

Lobelia Berlandieri, *Alph. DC. Prodr.* 7, *p.* 367. On the lower Rio Grande, Chihuahua, Neuvo Leon, etc. (No. 419 and 1429, *Wright.* No. 3177, *Berlandier*, Matamoras.) Annual, smooth. Stem erect, or sometimes apparently prostrate, more or less branching, mostly naked above. Lowest leaves broadly ovate or obovate, tapering at the base into a petiole; upper ones sessile, ovate and oblong-lanceolate, irregularly and acutely toothed. Flowers in lax racemes terminating the branches; the pedicels 2–4 lines long and twice the length of the linear bracts. Calyx about two thirds as long as the tube of the corolla, the segments subulate and denticulate. Corolla blue, 3–4 lines long; upper segments oblong-lanceolate; lower ones much narrower; the tube about as long as the stamina. Wright's 419 and 1429, differ in being more leafy above, and in the shorter pedicels. We suspect they are all forms of L. Cliffortiana.

Lobelia puberula, *Michx. Fl.* 2, *p.* 152. Near Victoria, Texas. This is the same as No. 42 of Drummond's 3d Texan collection, which Alph. DC, refers to L. amœna.

Lobelia laxiflora, *H. B. K.* 3, *p.* 311. L. fissa, *Roem. & Schultes.* Mabibi, Sonora; June; *Thurber.* About a foot and a half high. Leaves 3–5 inches long, lanceolate, acute at each end; the lower ones remotely and obscurely denticulate; the upper minutely and sharply serrulate. Raceme few-flowered. Pedicels an inch or more in length. Flowers nearly as large as in L. cardinalis. Segments of the calyx triangular-lanceolate, scarcely longer than the hemispherical tube. Corolla dull red; the tube three times as long as the calyx. Stamineal column considerably exserted.

Lobelia cardinalis, *L. Sp. p.* 1320. L. Texensis, *Raf.* Leon Spring, Devil's river, and Head of the Nueces, western Texas; also on the Mimbres, Neuvo Mexico; *Bigelow.* The flowers are sometimes smaller than in the northern plant; in which state it seems to be hardly distinct from L. Texensis, *Raf.*, except in the narrower flowers, and usually shorter sepals.

NEMACLADUS RAMOSISSIMUS, *Nutt. in Trans. Amer. Phil. Soc. n. ser.* 8. *p.* 254. (Tab. XLV.) Hill sides, Frontera, on the upper Rio Grande; also in Chihuahua, and near the Pimos villages, on the Gila; *Parry.* (No. 1428 and 1431, *Wright.*) We have specimens from California, collected by Dr. *Andrews* and *Rev. Mr. Fitch.* Mr. Nuttall considers this remarkable plant as the type of a distinct natural order which ought to be placed between Lobeliaceæ and Goodenoviaceæ; but we think it should certainly be referred to the former, notwithstanding the non-cohering anthers. The stigma is destitute of an indusium, and even of a hairy fringe.

CAMPANULACEÆ.

DYSMICODON PERFOLIATUM, *Nutt. l. c.* Campanula perfoliata, *Linn.* Copper Mines and Rio Mimbres, New Mexico; April–June; *Bigelow.* Cañon of Guadalupe, Sonora; *Capt. E. K. Smith.*

DYSMICODON OVATUM, *Nutt. l. c.* On the lower Rio Grande; April; *Schott.* Bexar, Texas; *Berlandier*, No. 368.

CAMPYLOCERA LEPTOCARPA, *Nutt., l. c.* First crossing of the Rio San Pedro, Texas; May–June; *Bigelow.*

CAMPANULA ROTUNDIFOLIA, *Linn. Sp. p.* 239. Rocks on the Rio Grande, 150 miles above the mouth of the Pecos; November; *Parry.* The radical leaves are ovate and acute, but there can be little doubt of the plant being a form of C. rotundifolia.

ERICACEÆ.

ARCTOSTAPHYLOS PUNGENS, *H. B. K. Nov. Gen. & Sp.* 3, *p.* 278; *Torr. in Emory, Rep. t.* 7, *& in Bot. Whipp. Rep., p.* 116. Dry pine woods, near Monterey, in the same State; *Parry.* Mountain sides and dry ravines, San Luis, etc., Sonora; *Capt. E. K. Smith; Schott, Thurber.* Mexico; *Berlandier*, No. 1318. Sometimes procumbent. Flowers rose-color.

ARCTOSTAPHYLOS TOMENTOSA, *Dougl.; DC. Prodr.* 7, *p.* 585; *Torr. l. c.* San Luis Obispo, California; April; *Parry.* Also in Napa county; *Thurber.* It is called *Mansinita*, (little apple,) by the Mexicans of California. The red berries are used by the Spanish natives to make a cooling sub-acid drink.

ARCTOSTAPHYLOS POLIFOLIA, *H. B. K. Nov. Gen., & Sp.* 3, *p.* 277. Lower California, near the boundary line. A shrub, about six feet high, with dark purple berries, which become black in drying.

ARBUTUS MENZIESII, *Pursh, Fl.* 1, *p.* 282. Mountains at the head of Rock creek; *Bigelow.* (No. 1433, *Wright.*) Only 12–15 feet high, and with smaller leaves than in the Oregon and California plant. In California, where it is common, it is a most beautiful tree, often 40 feet or more in height, and is known by the name of Madronia. The wood is used for making the heavy wooden stirrups of the Mexicans.

GAULTHERIA SHALLON, *Pursh, Fl.* 1, *p.* 284, *t.* 12. Pine woods near Monterey and in other parts of California; *Parry.* The aromatic acid berries are rather agreeable to the taste.

VACCINIUM OVATUM, *Pursh, Fl.* 1, *p.* 290; *Lindl. Bot. Reg. t.* 1354. Pine woods near Monterey, California; *Parry.* A neat evergreen shrub, 2–3 feet high. The berries are edible, but small.

STYRACEÆ.

STYRAX CALIFORNICUM, *Torr. Pl. Frém. in Smithson. Contrib. vol.* 6. Valley of the Sacramento.

EBENACEÆ.

Diospyros Texana, *Scheele in Linnæa.* 22, *p.* 145. Hill sides, Fort Inge to Escondido creek, and near Eagle Pass, western Texas; *Schott, Parry.* Flowers in March. Fruit ripe in August, about an inch in diameter.

SAPOTACEÆ.

Bumelia reclinata, *Vent. Ch. Pl. t.* 22, *fide Alph. DC. Prodr.* 8, *p.* 190: var. fructibus majoribus; floribus fasciculis numerosioribus. On the Rio Grande, from Laredo to the mouth of the river; *Schott.* Hills and plains near Live Oak creek; *Bigelow.* No. 1434, *Wright.* Matamoras; *Berlandier*, Nos. 1513, 3012 and 3048. A tree 25–30 feet high. It seems to differ from the plant of the Southern Atlantic States chiefly in the larger and more fleshy fruit. This is oblong, nearly three-fourths of an inch in length, sweet and edible. Testa smooth and shining, mottled with brown. Cotyledons united, thick and fleshy. Albumen wholly wanting.

THEOPHRASTACEÆ.

Jacquinia pungens, *Gray, Pl. Thurb. in Mem. Amer. Acad. Art. & Sc. n. ser.* 5, *p.* 325. Hills between Rayon and Ures, Sonora; *Thurber.* Perhaps a variety of T. macrocarpa, *Cav.*

PLANTAGINACEÆ.

Plantago major, *Linn. Sp., p.* 163. Banks of the Acequia, near El Paso; May; *Bigelow.* (No. 1441, *Wright.*) Probably introduced among agricultural seeds by the early Mexican settlers.

Plantago Patagonica, var. gnaphalioides, *Gray in Torr. Bot. Whipp. Rep. p.* 117, *& Man. Bot. ed.* 2, *p.* 269. P. gnaphalioides, *Nutt. Gen.* 1, *p.* 100. Western Texas, New Mexico, Sonora and California. Var. spicis oblongis vel capitatis. Dry hills, Sonora; *Schott.* San Diego, California; *Parry.* (No. 1438, *Wright.*)

Plantago Virginica, *Linn. Sp., p.* 163. Sandy banks of the Rio Grande, Eagle Pass, etc. Also in Sonora; *Schott.*

PLUMBAGINACEÆ.

Statice Limonium, *Linn. Sp., p.* 394. Saline soils, western Texas, and on the Rio Grande near its mouth; *Bigelow, Schott.* Salt places near San Diego, California; *Parry.*

PRIMULACEÆ.

Androsace occidentalis, *Pursh, Fl.* 1, *p.* 137; *Nutt. Gen.* 1, *p.* 118. Mule Spring and Cook's Spring, western Texas; April; *Bigelow.* Tubac, Sonora; March; *Parry.*

Samolus Valerandi, *Linn.*, var. Americanus, *Gray Man. ed.* 2, *p.* 274. S. floribundus, *H. B. K. Nov. Gen. & Sp.* 2, *p.* 224. Low places, borders of the Limpio; July, *Bigelow.* Banks of streams, Sonora, May; *Capt. E. K. Smith.* California; *Parry.*

Samolus ebracteatus, *H. B. K., l. c. p.* 223, *t.* 129. Common along the Rio Grande from El Paso to the Gulf, and on the seacoast of Texas.

Dodecatheon Meadia, *Linn. Sp. p.* 207; *Torr. in Bot. Whippl. Rep., p.* 118. Grassy places near Monterey and other places in California; March to April; *Parry.* This includes D. integrifolium, *Michx.*, and even D. frigidum, *Cham.*

LENTIBULACEÆ.

UTRICULARIA GIBBA, *Linn. Sp. p.* 26. In the San Pedro river, also in Elm creek, and near the head waters of the Nueces, western Texas, October; *Bigelow.*

BIGNONIACEÆ.

TECOMA STANS, *Juss. Gen. p.* 139; *DC. Prodr.* 9, *p.* 225. Hills along the Rio Grande, from El Paso downward and westward to Sonora; May to July. (No. 1446, *Wright.*)

CHILOPSIS LINEARIS, *DC. l. c. p.* 227. C. glutinosa, *Engelm. in Wilz. North. Mex., p.* 94. Hills and ravines along the Rio Grande, Santa Cruz river, etc., Sonora; *Schott* and *Capt. E. K. Smith.* San Felipe, California; *Parry* (No. 1447, *Wright*). A shrub usually 4–6 feet high, but Capt. Smith saw it in Sonora 25 feet high. I can distinguish but one species in the collections.

Suborder SESAMEÆ.

MARTYNIA VIOLACEA, *Engelm. in Wisliz. l. c. p.* 101. Low places and plains, near the Limpio, etc.; July; *Bigelow.* Near Laredo; *Schott.* Corallitas, etc., Chihuahua; *Thurber, Parry.*

MARTYNIA ARENARIA, *Engelm. l. c. p.* 100. Sandy places, from El Paso and near the Limpio (*Bigelow*) to the Presidio del Norte; July; *Parry.* Sonora; September; *Thurber.* "Plant viscid; corolla reddish-yellow externally, yellow inside; the throat mottled and veined with brown." *Thurber.*

OROBANCHACEÆ.

APHYLLON UNIFLORUM, *Torr. & Gr. in Gray's Man. Bot. ed.* 2, *p.* 281. Orobanche uniflora, *Linn.* California; *Rev. A. Fitch.*

APHYLLON FASCICULATUM, *Torr. & Gr. l. c.* Orobanche fasciculata, *Nutt. Gen.* 2, *p.* 59; *Hook. Fl. Bor.-Am.* 2, *p.* 93, *t.* 170. Tributaries of the Rio Yaqui, Sonora; June; *Thurber.* Mountains east of San Diego; June; *Parry.* Our numerous specimens show that the divisions of the calyx are variable in length and shape, so that the species is chiefly distinguished by its scaly stem and shorter peduncles.

PHELIPÆA LUDOVICIANA, *Walp.; Reuter in DC. Prodr.* 11, *p.* 11. Orobanche Ludoviciana, *Nutt.* On the beach at Brazos Santiago, Texas; May; *Schott.* Pachitiga, Chihuahua; August; *Thurber.*

PHELIPÆA COMOSA. Anoplanthus comosus, *Walp. Rep.* 3, *p.* 480, *& Reut. l. c.* Orobanche comosa, *Hook. Fl. Bor.-Am.* 2, *p.* 92, *t.* 169. California, probably on the lower Sacramento; *Shelton.* The specimens were parasitic on the roots of a species of Grindelia; apparently G. arguta. The calyx is deeply 5-parted, with nearly equal lanceolate-subulate segments. Bracteoles very remote from the flower, alternate on the pedicel, resembling the segments of the calyx. Lobes of the corolla all acute and entire; those of the upper lip ovate-lanceolate; of the lower linear-lanceolate.

SCROPHULARIACEÆ (by A. GRAY).

MAURANDIA ANTIRRHINIFLORA, *Willd. Hort. Berol. t.* 83. Common in the valley of the Rio Grande, and west to California.

MAURANDIA (EPIXIPHIUM) WISLIZENI (sp. nov. *Engelm.*): scandens, glabra; foliis hastatis; pedicellis axillaribus petiolo sæpiusque calyce brevioribus; corolla "pallide cærula," fauce pervia nuda; calyce fructifero demum subcoriaceo valde aucto et reticulato basi 5-angulato seu 5-carinato, lobis triangulari-lanceolatis sensim acuminatis; capsula ovoidea coriacea calyce inclusa stylo ensiformi rigido persistente cornuta, loculis juxta apicem rima transversali dehiscentibus; seminibus compressis ovalibus alatis disco paleaceo-rugosis.—Along the Rio Grande below Doña Ana, etc. This was first received in the collection of Dr. Wislizenus, and afterwards in that of Wright and most others from the northern borders of Mexico. Dr. Engelmann proposed it long ago, in MSS., as a new genus, under the name of *Epixiphium maurandioides*, which is here, with his permission, changed to Wislizeni, since I incline to view the plant as the type of a mere subgenus of Maurandia, freely admitting, however, that its characters are as well marked as those of Lophospermum. The remarkable fructiferous calyx is 8 or 9 lines broad at the base, strongly 5-angled and keeled, and an inch or an inch and a half long; the sword-shaped persistent style nearly equals the calyx-lobes, and the dehiscence is by a clean transverse chink on each side, which inclines to extend downwards so as to become valvular. Seeds blackish, distinctly winged, 1½ to 2 lines long.

ANTIRRHINUM NUTTALLIANUM, *Benth. in DC. Prodr.* 10, *p.* 592. San Diego, California; May–June; *Parry.* On the Great Colorado; *Schott.* Leaves of the branches mostly roundish-cordate. Segments of the calyx ovate, a little unequal. Persistent base of the style oblique.

ANTIRRHINUM COULTERIANUM, *Benth. l. c.* Near San Pasqual, California, May; *Thurber.* Mountains east of San Diego, June; *Parry.* Root annual. Stem 3 or 4 feet high, supporting itself on other plants by its twining slender branches. Raceme nearly a foot long: persistent base of the style oblique. This species is near A. majus.

LINARIA CANADENSIS, *Dum.; Benth. in DC. Prodr.* 10, *p.* 278. Near the Copper Mines, and on Rock creek, New Mexico; *Bigelow.* Monterey, California; *Parry.* Upper Sacramento; *Stillman.*

SCROPHULARIA COCCINEA (sp. nov.): glabra; foliis deltoideo-ovatis vel subcordatis acutis grosse dentatis, dentibus pauci-serratis; thyrso oblongo aphyllo; cymis plurifloris floribusque minutim glandulosis; calycis segmentis ovatis margine haud scariosis; corolla læte coccinea, lobis 2 posticis tubo ovato-oblongo gibboso dimidio breviore, anticis brevissimis; anthera sterili obovato.—At the base of a rocky ledge near the summit of a mountain, Santa Rita del Cobre, New Mexico; *Wright* (1470), *Bigelow.* What appears to be the same species in fruit was collected by Dr. Bigelow near the Organ mountains. A truly handsome species. Specimens raised from seeds in the autumn of 1852 (but which were unfortunately soon lost) displayed flowers as bright red as those of Stachys coccinea.

COLLINSIA BICOLOR, *Benth. in Hort. Trans. n. ser.* 1, *p.* 48, *& in DC. Prodr.* 10, *p.* 318. Oak woods near Santa Barbara, and San Diego, California; March; *Parry.*

PENTSTEMON AMBIGUUS, *Torr. in Ann. Lyc. N. Y. p.* 228, *& in Marcy's Rep. p.* 293, *t.* 16. Gravelly hill sides near Tascate; July; and Burro mountains; September; also near San Diego; *Bigelow.* Sand hills, Chihuahua; *Thurber* (742.) A common species in or near the southern Rocky mountains. In the figure cited above, the sterile filament is represented as bearing a small anther, to which no allusion is made in the letter-press. It is not found in the present specimens, but exists in all those collected by Captain Marcy. In this as in several species of the genus, either all four fertile stamens or the two posterior are often free from the corolla nearly or even quite to the base.

PENTSTEMON LINARIOIDES (sp. nov.): suffruticosus, pube minutissima glauco-cinereus, multicaulis; caulibus floridis simplicibus foliosis strictis (6–15-pollicaribus); foliis angustissime linearibus seu lineari-acerosis imisve spatulato-linearibus mucronatis integerrimis; racemo vel paniculo virgato laxifloro; pedunculis alternis brevibus 1–5-floris; calycis segmentis ovatis vel ovato-lanceolatis acuminatis inferne scarioso-marginatis; corolla pallide cæruleo-purpurea superne ampliata breviter bilabiata, palato pl. m. barbato, lobis rotundatis subconformibus patentibus; antheris glabris subexsertis; filamento sterili longitudinaliter barbato.—Organ mountains; *Parry*. Copper Mines and Los Animos, New Mexico; *Wright*, (1472,) *Thurber*, (331, 1115,) *Bigelow*. Sierra San Luis, Chihuahua and Sonora; *Schott*. A well marked species, of the group to which the preceding belongs; the numerous flowering stems form a woody base; the foliage and inflorescence resembling one of the strict and narrow-leaved Linarias. Corolla 7 to 9 lines long.

PENTSTEMON JAMESII (*Benth. in DC. Prodr.* 10, *p.* 325): pumilus, strictus, puberulus; foliis nunc glabratis omnibus sessilibus plerisque parce denticulatis, caulinis floralibusque linearibus, imis et radicalibus sublanceolatis deorsum attenuatis; racemo 8–12-floro spicato; pedunculis alternis 1–2-floris seu pedicellis brevissimis cum sepalis e basi lata lanceolatis sensim acuminatis viscido-pubentibus; corolla (pallide purpurea) tubo angusto, fauce subito valde ampliata campanulata, lobis conformibus rotundatis; antheris glabris; filamento sterili longitudinaliter barbato.—Low places near the Limpio, July; *Bigelow*. This species may be described as intermediate between P. Cobæa and P. pumilus, *Nutt.* The specimens are only 5 or 6 inches high, herbaceous, erect, leafy; the leaves from 1½ to 2½ inches long, and 1½ to 2½ lines wide, thickish; the upper floral linear-subulate and not exceeding the calyx; the latter is half an inch long; the corolla, which has just the shape of that of P. Cobæa, is over an inch long. It is somewhat viscid externally and slightly bearded within the lower lip. Sterile stamen like that of P. Cobæa, but the beard denser.

PENTSTEMON STENOPHYLLUS (sp. nov.): glaberrimus; caule gracili 2–3-pedali; foliis linearibus elongatis integerrimis, floralibus lineari-setaceis; panicula laxiflora; pedunculis oppositis patentibus gracilibus 2–5-floris pedicellis 2–4-plo longioribus; calyce parce glanduloso-pubero, segmentis ovatis margine scariosis ciliato-denticulatis acuminatis, acumine patente; corolla infundibuliformi-ampliata (fere sesquipollicari cærulea?) vix bilabiata, lobis brevibus conformibus rotundatis; antheris rima hirto-ciliolatis; filamento sterili glaberrimo summo apice dilatato.—Hills between Babacomori and Santa Cruz, Sonora; *Wright*, (1477.) Radical leaves not seen; cauline all alike, but gradually smaller and narrower towards the summit of the virgate stem, the larger 4 inches long and 1½ or 2 lines wide, perfectly entire. Peduncles 1½ or 2 inches long. Pedicels 3 to 6 lines long. Calyx 2 or 3 lines long. This species belongs to the section *Cepocosmus*, and to the same group with P. imberbis. If, as seems likely, No. 186 of the collection of Wislizenus, from Cosiquiriachi, belongs here, the corolla is blue.

PENTSTEMON DASYPHYLLUS (sp. nov.): velutino-puberulus; caulibus e basi suffructicosa strictis; foliis lineari-lanceolatis imisve oblanceolatis integerrimis obtusis junioribus præsertim molliter velutinis, floralibus gradatim minoribus cum racemo simplici laxo paucifloro glanduloso-puberulentis; pedicellis alternis; sepalis ovato-oblongis obtusis; corolla ("purpureo-cærulea" fere sesquipollicari) ampliato-infundibuliformi vix bilabiata, lobis rotundatis subconformibus; antheris rima ciliolato-hirtellis; filamento sterili glaberrimo apice vix dilatato.—Stony hills of the Pecos, and Cook's Spring, New Mexico; *Wright*, (1478). Valley of the Santa Cruz river on mountain sides, and in the valley of the San Pedro, Sonora; *Capt. E. K. Smith, Bigelow & Thurber*. Also

collected by Dr. Woodhouse in Sitgreave's expedition. Stems 1 to 2 feet high, simple, virgate. Leaves 1 to 3 inches long, 1½ to 3 lines wide, thickish. Pedicels almost always simple and ebracteolate, 3–8 lines long. Calyx 2–3 lines long; corolla much as in the last; sterile filament shorter, and gradually very slightly dilated upwards. This is evidently most related to P. lanceolatus, *Benth.;* but is more downy, with simpler inflorescence; and the much larger and more dilated corolla is of a different color; being red in P. lanceolatus, according to Dr. Gregg's notes on a specimen gathered by him at Buena Vista.

PENTSTEMON VIRGATUS, (sp. nov.): glaber, seu minutissima glanduloso-puberulus; caule herbaceo simplici stricto; foliis lineari-lanceolatis acutis integerrimis, radicalibus spatulato-lanceolatis obtusis, floralibus gradatim in bracteas subulatas breves diminutis; panicula virgata elongata multiflora subsecunda; pedunculis plerumque oppositis 1–4-floris pedicellisque sæpissime floribus haud longioribus; sepalis ovato-rotundis margine subscariosis; corolla (roseo-lilacina venis intus purpureis) dilatato-infundibuliformi bilabiata, labiis æquilongis, superiore vix concavo bilobo, inferiore patente tripartito, lobis omnibus ovalibus conformibus; antheris glabris subexsertis; filamento sterili glaberrimo apice dilatato.—Santa Rita del Cobre, on the mountains; *Bigelow, Wright*, (1476;) also gathered by *Dr. Woodhouse.* A pretty species, which has been raised in the Cambridge Botanic Garden, from Mr. Wright's seeds. It is a foot or 18 inches high, including the virgate inflorescence of half that length. Leaves from 1½ to 4 inches long, and 1½ to 3 lines wide, usually tapering to both ends. Corolla two-thirds of an inch long. Anther-cells soon divaricate. According to Bentham's arrangement this belongs to the section Eupentstemon.

PENTSTEMON PUNICEUS (sp. nov.): glaberrimus, glaucus; caule herbaceo valido; foliis crassis, radicalibus obovatis, caulinis ovatis cordato-amplexicaulibus plus minusve connatis acutis integerrimis, floralibus parvis; panicula contracta virgata nuda interrupta; cymis subsessilibus multifloris; pedicellis gracilibus (flore fere æquilongis) nudis; sepalis ovalis obtusis; corolla infundibuliformi, limbo fere æqualiter 5-lobo, lobis rotundatis patentibus; antheris glabris, filamento sterili sub apice hinc barbato.—In the Guadalupe cañon, Sonora, June, 1851; *Thurber & Captain E. K. Smith.* This is apparently a large, and must be a strikingly handsome species, with its glaucous foliage and "brilliant scarlet" flowers. Lower leaves (with the base of the stem) wanting in my specimen; but those present show a tendency to be connate-perfoliate. Corolla less than an inch long; the throat moderately enlarged; lobes about 3 lines long.

PENTSTEMON PUNICEUS, var.? PARRYI: foliis superioribus (caet. ignotis) lanceolatis basi cordato-amplexicaulibus; cymis pedunculatis; floribus paullo minoribus; sepalis oblongis; filamento sterili sub apice hinc densissime barbato.—On the Rio Gila, March, 1852; *Parry.* The specimens gathered are merely two flowering summits; the color of the blossoms not recorded, nor positively to be made out. But its floral characters so nearly accord with the preceding that it must, for the present at least, be appended to it.

PENTSTEMON WRIGHTII, *Hook. Bot. Mag., t.* 4601. On rocky mountain sides near the head of the Limpio, June; *Wright,* (unnumbered.) Santa Cruz mountains and Los Nogales; *Captain E. K. Smith.* (The latter a somewhat remarkable form, but clearly of this species.) We have also had this pretty species in cultivation. The corolla is rich rose-color, as described in the letter-press, but with none of the deep red given in the figure in the Botanical Magazine.

PENTSTEMON SPECTABILIS (*Thurber, MSS.; Torr. & Gray, in Bot. Whipp. Pacif. Railroad*

Rep.) Mountains east of San Diego; *Parry*. San Pasqual, California; *Thurber, Schott*. Dry ravines, Organ mountains, New Mexico; *Bigelow, Wright*, (1475.) These specimens of this well-marked and showy species, though not displaying such an ample panicle of flowers as do the Californian ones from Thurber and Mr. Wallace, evidently belong to the same species. It pertains to the section Cepocosmus.

PENTSTEMON FENDLERI, *Gray, in Bot. Pope's Rep. p.* 12, *t.* 5. Common apparently, from the Platte through New Mexico and the Rocky mountains to Chihuahua, (*Wislizenus*, No. 245,) and brought by all the collectors. It is Fendler's No. 576, and Wright's 1473. (This clearly is not distinct from P. cyananthus, *Hook. Bot. Mag.*, *t.* 4464, which was overlooked when P. Fendleri was characterized; it must accordingly bear that name.)

PENTSTEMON GRACILIS, *Nutt. Gen. p.* 52. Near the Guadalupe river, above Victoria, Texas; *Schott.*

PENTSTEMON DIGITALIS, *Nutt. in Trans. Amer. Phil. Soc. n. ser.* 5, *p.* 181. Rio Hondo, Texas; *Wright.*

PENTSTEMON BARBATUS, *Nutt.; Benth. in DC. Prodr.* 10, *p.* 329. P. Torreyi, *Benth.! l. c. p.* 324. Common in New Mexico, along the mountains; *Fendler*, (581,) *Wright*, (440, 1474); *Bigelow*, etc. Santa Cruz mountain; *Captain E. K. Smith.* We have this in cultivation from Mr. Wright's seeds. It is hardy at Cambridge, and is taller (4 to 6 feet high) than the commonly cultivated P. barbatus, as well as fuller-flowered; the virgate panicle becoming 2 or 5 feet in length, and bearing a long succession of fine scarlet blossoms, in some plants of the most brilliant hue. The calyx-segments are either marginless or slightly margined. The lower lip of the corolla at the throat is bearded, either somewhat copiously or sparingly, or in some plants the beard wholly disappears, so that the name *barbatus* is not characteristic of this species. But that all our forms are specifically identical with the old Chelone barbata I cannot doubt. In establishing his P. Torreyi, Mr. Bentham, who is generally so very accurate, has made two mistakes; the first, into which he was naturally led by the imperfection of the original specimens, was in referring his plant to the section Cepocosmus, and comparing it with P. imberbis, whereas it is a genuine Elmigera, having the upper lip erect, concave, and moderately two-lobed, the lower 3-parted and reflexed; the second in attributing to P. barbatus a bearded sterile filament, whereas it has always been described as with a naked one, conformably to the distinction formerly taken in this respect between Chelone and Pentstemon.

PENTSTEMON BARBATUS, var. PUBERULUS. Guadalupe cañon, May, 1851; *Thurber.* In every respect it is P. barbatus, but with a minute pubescence on the stem and leaves.

PENTSTEMON BACCHARIFOLIUS, *Hook. Bot. Mag.*, *t.* 4627. Rocky bluffs at the Big Bend of the San Pedro river, Texas; *Wright*, (439, 1479.) This showy species has been found only by Mr. Wright, who discovered it in 1849. From seeds gathered by him it has been raised both in England and in the Cambridge Botanic Garden. Overlooking Hooker's publication of the species, I had named it P. Grahami, in compliment to Colonel Graham, United States Topographical Engineers, under whose command Mr. Wright was when he, for the second time, met with the plant; but the name has not appeared in print, so far as I am aware. The figure in the Botanical Magazine does feeble justice to the very deep and carmine corolla, and represents the plant as coarser and the leaves as considerably larger than usual. The latter in the wild specimens are only $\frac{1}{2}$—1 inch long, and very thick and firm. Far from being "annual?" the plant is shrubby. The upper lip of the corolla is erect or at length somewhat recurved; the

lower shorter, 3-parted and recurved. The plant is ambiguous between the sections Cepocosmus and Elmigera.

PENTSTEMON CORDIFOLIUS, *Benth. Scroph. Ind. p. 7, adnot & in DC. Prodr.* 10, *p.* 329. Mountains east of San Diego, California; June; *Parry.* Near the town of the same name; May; *Thurber.* Santa Barbara; *Major O. Rich.* This species differs from all the rest of the genus in its somewhat climbing habit. It runs over tall bushes like a Lonicera, and has bright scarlet flowers, which are resupinate.

PENTSTEMON TERNATUS, (*Torr. MSS.*): glaber; caulibus e basi fruticosa erectis; foliis ternatim verticillatis lanceolatis argute denticulatis utrinque acutis; panicula laxa pauciflora; corollæ tubo elongato vix ampliato labio recto; filamento sterili barbato.—Mountains east of San Diego; June; *Parry.* Branches straight and slender. Leaves about one inch long. Flowers in terminal racemose panicles. Pedicels verticillate. Segments of the calyx ovate-lanceolate, acuminate. Corolla nearly an inch long, pale scarlet according to *Dr. Parry.* This species belongs to the section Elmigera of Bentham.

PENTSTEMON CENTRANTHIFOLIUS, *Benth. Scroph. Ind. p.* 7, *adnot. & in DC. Prodr.* 10, *p.* 323. Mountains east of San Diego, California; June; *Parry.* Also near Monterey; *Dr. Andrews and Mr. Shelton.* A fine deep scarlet-flowered species, with the leaves very variable in breadth.

PENTSTEMON BREVIFLORUS, *Lindl. Bot. Reg. t.* 1946; *Benth. in DC. Prodr.* 10, *p.* 329. California, (near Monterey;) *Rev. A. Fitch.* A rare and remarkable species; also found by Dr. Bigelow on the Stanislaus river. Corolla yellow, except the lobes of the lower lip, which are pale purple.

PENTSTEMON HETEROPHYLLUS, *Lindl. Bot. Reg., t.* 1899; *Benth. in DC. Prodr.* 10, *p.* 300; *Gray in Bot. Whipp. Rep.* Mountains east of San Diego, California; June; *Parry.* Near Monterey; *Dr Andrews.* Our specimens appear to be suffrutescent. The flowers are pale purple.

PENTSTEMON ANTIRRHINOIDES, *Benth. in DC. Prodr.* 10, *p.* 594. Dry valleys among the mountains east of San Diego, California; June; *Parry.* San Pasqual; *Thurber;* May. A rare shrubby species, 3 or 4 feet high.

LEUCOPHYLLUM TEXANUM, *Benth. in DC. Prodr.* 10, *p.* 344. Common in southern and western Texas, occurring in all the collections. The stigma is bilamellate, as described by *Kunze*, but the two lamellæ commonly cohere. This must be a beautiful shrub when loaded, as it often is, with its rich violet-purple blossoms, contrasting with its silvery white foliage. In the finest specimens the limb of the corolla is fully an inch in diameter, and delicately soft-bearded within, and the wide tube two-thirds of an inch long to the base of the lobes. Sometimes the fifth stamen is present and imperfectly antheriferous.

LEUCOPHYLLUM MINUS (sp. nov.): humile; foliis obovato-spathulatis retusis pube minuta argenteis; calycis laciniis linearibus; corollæ lobis tubo dimidio brevioribus.—Hills on and near the Pecos; *Wright*, (442, 1481.) Between Van Horn's Wells and Muerta; *Bigelow, Parry.* A low, spreading shrub, only two feet high; the tomentum much finer and closer than in the foregoing, and the purple flowers not half the size. Leaves from a quarter to half an inch long, including the petiole or tapering base. I am not sure that this is specifically distinct from L. ambiguum, having no specimen of that species. The corolla is, however, as deeply cleft as in L. Texanum.

MIMULUS LUTEUS, *L.; Benth. in DC. Prodr.* 10, *p.* 370; var. gracilis; floribus minoribus. (Near M. Scouleri; *Hook;* which can be only a form of M. luteus.) Copper Mines, New Mexico, and

near Cruces; *Bigelow*. Gila valley; *Schott*. Napa county, California; *Thurber*. San Luis Obispo; *Parry*. The capsule of this species accords with the generic character, as given by Bentham, &c., except that the membranaceous valves scarcely, if at all, separate from the undivided placenta, but remain coherent by means of the thin and short partitions.

MIMULUS GLABRATUS, *H. B. K. Nov. Gen. & Spec.* 2, *p.* 370; *Benth. l. c.* Copper Mines and Mimbres, New Mexico; *Bigelow; Wright.*, (1842,) *&c.* Ojo Francisco and Tucson, Sonora; *Parry & Capt. S. K. Smith.* Texas; *Wright & Lindheimer.* This appears to vary as much in size and aspect, and to have nearly as large a geographical range as M. luteus; and M. Jamesii is pretty plainly no more than a smaller flowered and almost entire-leaved northern form of it.

MIMULUS BREVIPES, *Benth. Scroph. Ind.* 2, *adnot.*, *& in DC. Prodr.* 10, *p.* 369. Near San Diego, California, May; *Thurber, Parry, etc.* Chiefly narrow-leaved forms, the same as Coulter's No. 640. Bentham indicates it as perennial, but our Douglasian specimens show an annual root; so do those of Thurber. The capsule of this species is ovoid-lanceolate, rather firm and chartaceous in texture, loculicidal and splitting through the axis, separating the two placentæ, which remain adnate to the valves, just as in Diplacus. Through M. rubellus, etc., there is a regular gradation as to the dehiscence between this and the Mimuli with a thin and membranaceous capsule, and a fleshy placenta, which shows no disposition to split.

MIMULUS CARDINALIS, *Dougl.; Benth. l. c.* Near San Diego, and in the mountains westward, California; *Parry.* The valves of the capsule with the partitions in this species tardily separate from the axis, from which the two placentæ are pretty widely separated, being projected far into the cells.

MIMULUS RUBELLUS, (sp. nov): tenellus, erectus, e radice annua ramosus, viscido-puberulus; foliis anguste oblongis lanceolatisve trinervibus fere integerrimis basi angustatis sessilibus; pedunculis folium plerisque superantibus; calycis oblongi dentibus brevibus aequalibus, ore aequali; corollæ purpureæ tubo haud exserto.—Wet ravines of the Organ mountains and Copper Mines, April; *Bigelow, Wright*, (1483,) and Hueco mountains; *Thurber*, (135.) Plant 2 to 6 inches high. Leaves 3 to 8 lines long, the uppermost acutish. Calyx perfectly equal at the summit, even in fruit, 3 lines long, narrow. Tube of the corolla yellowish, the limb 1½ line long, pink or purple. The valves of the capsule are pretty thin and delicate; but the placenta splits at the summit in dehiscence, or is bipartible, one half remaining adnate to each valve.

MIMULUS (DIPLACUS, *Nutt.*) GLUTINOSUS, *Wendl. Obs.*, *p.* 51. San Francisco, Monterey, and San Diego, California. In various forms, and both with red and yellow flowers. Several annual Mimuli being dehiscent through the placenta in the same way as the present plant, there appears to be no ground for viewing Diplacus as anything more than a marked section of Mimulus, distinguished by its shrubby habit, glutinous foliage, and narrow pods of a firm texture.

EUNANUS FREMONTI, *Benth. in DC. Prodr.* 10, *p.* 374? Dry gravelly places near Monterey, May; *Parry.* Only a single and miserable specimen was gathered. It seems likely to be a state of E. Frémonti, or possibly of Douglasii, with a remarkably abbreviated corolla.

HERPESTIS CHAMÆDRIOIDES, *H. B. K. Nov. Gen. & Spec.* 2, *p.* 369. Santa Cruz, and Sierra Verde, Sonora; *Wright*, (1484,) *Schott.* Also a variety with simpler and less spreading stems, and obscurely toothed leaves (H. nigrescens, *Engelm. & Gray, Pl. Lindh. No.* 140:) between the Pecos and the Limpio; *Wright*, (443,) and Rock Creek; *Bigelow.*

HERPESTIS ROTUNDIFOLIA, *Pursh, Fl.* 2, *p.* 418. Along the Rio Grande below El Paso; *Wright.* (444.)

HERPESTIS MONNIERA, *H. B. K. l. c.* H. cuneifolia, *Pursh.* Monniera cuneifolia, *Michx. Fl.* 2, *p.* 22. Marshy shore of the Rio Grande, between Eagle Pass and Laredo, April; *Schott.* Monterey, Neuvo Leon; *Dr. Edwards.* Chihuahua; *Dr. Gregg.*

CONOBEA (SCHISTOPHRAGMA) INTERMEDIA, (sp. nov.): viscoso-pubescens; foliis subpinnatipartitis; floribus brevissime pedunculatis; antheræ loculis subcontiguis; capsula ovato-lanceolata calyce subinæquali dimidio longioribus.—Dry hills around the Copper Mines, New Mexico; very common; *Wright.* (1485). Annual, erect spreading, 2–6 inches high, with the aspect of C. (Leucospora) multifida; only more pubescent; the flowers very short-peduncled; the corolla twice as large, purple, or the lower lip pale. Capsule 3 or 4 lines long, pointed. This connects Bentham's Conobea multifida and his Schistophragma pusilla in such a way as to render it necessary to comprehend under one and the same genus these three species of closely similar aspect. The pod is just intermediate between the ovate shape of the first and the linear form which distinguishes the last; but it has the spirally striate seeds of Schistophragma. Its unequal calyx (the upper sepal being somewhat larger, or at least longer than the others,) would appear to exclude it from Schistophragma no less than from Conobea; but I observe the same thing, only rather less marked, in an authentic specimen of Bentham's S. pusilla var. major, from Santa Martha. The stigma is essentially the same in all three. The present species has one peculiarity: while in its unequal calyx it seems to approach Herpestis, in its anthers, (the cells of which are not side by side, but one inserted a little above the other) it approaches Stemodia and its allies.

CONOBEA MULTIFIDA, *Benth. in DC. Prodr.* 10, *p.* 491. Capraria multifida, *Michx. Fl.* 2, *p.* 22, *t.* 35. Common on the sandy shore of the Rio Grande near Eagle Pass, April—May; *Schott.* Rio Coleto, Texas; *Thurber.*

GRATIOLA PUSILLA, *Torr. in DC. Prodr.* 10, *p.* 402. On the Colorado, Texas; *Wright.*

VERONICA ANAGALLIS, *L.* New Mexico, on the Mimbres; *Wright,* (1487,) *Thurber;* and near the Copper Mines; *Bigelow.*

VERONICA PEREGRINA, *L.* On the Rio Grande, near El Paso, and Lake Santa Maria, Chihuahua; *Wright,* (1488.) Plains near Laguna de Lache, Solado, Mexico; *Bigelow.* Tubac; *Parry.* San Bernardino, Chihuahua; *Thurber,* (376.)

BUCHNERA ELONGATA, *Swartz. Fl. Ind. Occ.* 2, *p.* 1061. Painted Caves and Medina creek, Texas; *Bigelow, Schott.*

SEYMERIA BIPINNATISECTA, *Seem. Bot. Herald, p.* 323, *t.* 59, var. TEXANA: pilis glandulosis et viscidis pubescens seu villosa; ramis subvalidis; foliis bipinatifidis vel superioribus pinnatifidis, segmentis lato-linearibus obtusis inciso-dentatis; pedicellis sæpissime brevibus; antheris obtusissimis; capsulis glandulosis acutatis vel obtusis.—Upper Guadalupe river, etc.; *Lindheimer.* Lower Rio Grande; *Wright.* Head of the Pedro river, Sonora? *Bigelow.* A stouter, more pubescent and glandular plant than S. pectinata, and with the leaves much more cut, sometimes even tripinnatifid. The shape of the capsule varies so in the numerous specimens under examination that I fear it cannot be greatly relied upon in this genus. The above character was drawn up, under a different name, before Seemann's plant was published. I have not seen Mexican specimens. Our plant has less dissected foliage and (except in one or two instances) much shorter pedicels than are delineated in Seemann's figure, and no such incised or pinnatifid calyx-lobes, (which, by the way, are not mentioned in the character,) still the two are likely to fall under the same species.

SEYMERIA SCABRA (sp. nov.): hispidulo-scabra, gracilis; foliis linearibus parvis pinnatipartitis paucilobatis superioribus 3–5-fidis integrisve; corolla fere glabra; antheris sagittatis, loculis acutis; capsulis glabellis ovato-acuminatis.—Mountain sides beyond the pass of the Limpio; *Wright*, (448.) Lower leaves wanting; the largest seen little over half an inch in length; the segments narrowly linear 1–2-toothed or entire. Flowers about as large as those of S. pectinata. Calyx-lobes narrowly linear. Capsule fully 4 lines long. Well marked by its anther-cells tapering gradually to an acute point.

GERARDIA WRIGHTII (sp. nov.): caulibus e radice perenni simplicibus virgatis cum foliis lineari-filiformibus mucronato-acutatis scaberrimis; pedunculis flore æquilongis; calyce truncato breviter 5-dentato; corolla flava late campanulata e tubo brevissimo extus pubescente intus glaberrima; filamentis brevibus apice tantum villosis; antheris conformibus nudis obtusissimis basi sagittatis, loculis aristato-subulatis; stigmate clavato.—Hill sides between Babacomori and Santa Cruz, Sonora; *Wright*, (1489,) *Bigelow*. With the habit, calyx, and corolla of a true Gerardia, sect. campanifloræ, this plant has yellow flowers, (according to Mr. Wright's notes taken on the spot,) naked anthers, short-awned at the base, and the filaments glabrous except near the summit. The stamens are pretty strongly didynamous, and the four anthers similar.

GERARDIA HETEROPHYLLA, Nutt.? var. pedunculis calyce dimidio brevioribus; foliis plerisque ultra-pollicaribus. Leone Spring, Texas; *Bigelow*.

GERARDIA PURPUREA, *Linn*. San Pedro river, etc., Texas; *Parry*, *Schott*.

CASTILLEJA INDIVISA, *Engelm. Pl. Lindh.* 1, *p.* 47; *Benth. in DC. Prodr.* 10, *p.* 530. San Pedro river; *Wright*, (453,) etc.; *Bigelow*. Castle-Mountain Pass, Texas, October; *Thurber*.

CASTILLEJA PURPUREA, *Don.; Benth. in DC. Prodr.* 10, *p.* 531. Euchroma purpurea, *Nutt.* Texas; *Wright*, &c. Not seen on the Rio Grande, but common further north and east. Well distinguished by the lower lip of the corolla, which is 2½ lines long, but not always half as long as the galea. The calyx is commonly split as deeply behind as before. "Bracts and calyx varying from sulphur yellow to flesh-color, brick-red, and cherry-red, even in the same locality, so that the specific name is not a good one." (*Lindheimer.*) The root is perennial.

CASTILLEJA LANATA (sp. nov.): perennis, tomento floccoso simplici denso undique incana; foliis linearibus integerrimis, floralibus nunc trifidis apice coloratis; spica demum interrupta; calycis aequaliter bifidi lobis obovato-oblongis integerrimis retusisve corollæ labium inferius multum superantibus.—Along and near the Rio Grande, from Eagle Pass, etc., to El Paso; *Wright*, (452, 1495), *Bigelow*, *Parry*, etc. On the Limpio; *Wright*, (451.) Near Buena Vista; *Gregg*. A most remarkable white-woolly species, with larger leaves and flowers than C. foliolosa. The latter species is sometimes almost as white, but its tomentum is formed of repeatedly branched hairs, whereas the wool of C. lanata consists of long and simple arachnoid hairs.

CASTILLEJA TOMENTOSA (sp. nov.): perennis, pilis simplicibus laxis cano-lanata; foliis linearibus margine revolutis integerrimis, floralibus trifidis superne coloratis; spica demum interrupta; calycis subaequaliter bifidi lobis semibifidis lanceolatis acutis corollam aequantibus.—Mabibi, Sonora, June, 1851; *Thurber*. Considerably like the last and C. foliolosa, but the wool less dense and floccose than in C. lanata, and the calyx different, and apparently fully as long as the galea. Floral leaves and calyx-lobes red or purple.

CASTILLEJA ANGUSTIFOLIA. Euchroma angustifolia & E. Bradburii, *Nutt. in Jour. Acad. Philad.* 7, *p.* 46? On Live Oak creek, the Limpio, etc., *Wright*, (1491, 1492, with yellow bracts and calyx;) also in his first collection, but undistributed. Mr. H. Engelmann collected it at Bridger's Pass. This most likely belongs to Nuttall's species, but the lower leaves are

mostly entire. The calyx is not equally 4-cleft, but is equally 2-cleft and the divisions 2-cleft, nearly as in C. purpurea, from which it differs by the short lower lip of the corolla.

CASTILLEJA SESSILIFLORA, *Pursh, Fl.* 2, *p.* 728. Low places near Rock creek and Mule Springs; *Bigelow.* Eagle Pass; *Parry.* Santa Maria, Chihuahua; *Schott.* Mule Springs, New Mexico, May; *Thurber.*

CASTILLEJA HISPIDA, *Benth. in Hook. Fl. Bor.-Am., & in DC. Prodr.* 10, *p.* 532. Dry hills, San Diego, California; *Parry.*

CASTILLEJA INTEGRA (sp. nov.): perennis; caule stricto tomentoso; foliis linearibus integerrimis subtus tomentulosis, floralibus oblongis obovatisque integerrimis coloratis (puniceis); spica conferta; calyce æqualiter vel postice profundius bifido, lobis bifidis lanceolatis obtusiusculis labium inferius galea multoties brevius adaequantibus.—Organ mountains, east of El Paso; *Wright,* (undistributed,) *Bigelow.* Guadaloupe cañon, Sonora; *Capt. E. K. Smith.* Also gathered in the Rocky Mountains further north by Mr. Kreuzfeldt, in Gunnison's expedition. Stem one or two feet high, mostly simple, rigid; leaves $1\frac{1}{2}$ to 3 inches long, 2 to 3 lines wide, entire; most of the floral ones almost wholly petaloid, ample, shorter than the fully developed flowers. Calyx 8 or 12 lines long, red or reddish; "corolla reddish green;" galea 6 to 8 lines long; the lower lip very short Apparently a well marked new species of the section Callichroma. It is No. 584 of Fendler's New Mexican collection; and Dr. Bigelow gathered specimens in Whipple's expedition on the Llano Estacado.

CASTILLEJA AFFINIS, *Hook. & Arn. Bot. Beech. p.* 144; *Benth. l. c., p.* 532; var. MINOR; corolla calyce paullo longiore. Bed of exsiccated streams, near the Copper Mines, New Mexico; *Bigelow, Wright,* (1494.) Santa Maria, Chihuahua; *Bigelow, Wright,* (1493.) Presidio del Norte and Sonora; *Schott.* Los Animos; *Thurber.* Tubac, Sonora; *Parry.* And Santa Cruz Mountains in the same State; *Captain E. K. Smith.* A slender, often branching plant, with an annual or biennial root. Flowers, especially the corolla, very much smaller than in the typical Californian plant (such as Hartweg's No. 1896;) but Hartweg's No. 1897 connects the two. The lobes of the calyx vary from nearly entire to deeply 2-cleft; the tube is often split down deeper on the posterior than the anterior side.

CASTILLEJA LAXA (sp. nov.): herbacea, cinereo-pubescens; caulibus e radice perenni subdiffusis ramosis gracilibus; foliis tenuibus scabridis lineari-lanceolatis integerrimis basi haud dilatatis, floralibus calyce brevioribus, superioribus rubro-coloratis; floribus paucis confertis breviter pedicellatis; calyce rubello antice profundius postice leviter fisso, dentibus brevibus obtusis; corollæ galea magna, lobis labii inferioris brevissimis obtusis.—Mountain sides near Santa Cruz, Sonora; *Wright,* (1490.) This appears to be a well-marked species of the section Hemichroma, with the bracts and calyx more colored than is usual in that section. The thin leaves do not turn blackish in drying; they are mostly about 2 inches long and 3 lines wide; the floral shorter and blunter, the lower mostly green, the upper colored red. Calyx very thin, slightly pubescent, an inch long, exceeding the lower lip of the corolla by 3 or 4 lines, but half or two-thirds of an inch shorter than the ample galea, nearly straight, deeply cleft anteriorly, but on the posterior side only to the depth of 2 or 3 lines; the teeth broad and short. Galea somewhat pubescent on the back, yellowish, the edges tinged with red.

CASTILLEJA LINARIÆFOLIA, *Benth. in DC. Prodr.,* 10, *p.* 532. Arroyos in Sonora; *Thurber.* "Plant 4 to 6 feet high." Though the calyx is rather shorter and the falcate galea longer, this appears to be only C. linariaefolia. To it probably belongs C. fulgens, *Nutt. ined.,* and C. can-

dens, *Durand, Pl. Herrm.* Dr. Bigelow gathered it at Albuquerque, New Mexico, when in Whipple's expedition; and Fendler's No. 583 is a narrow-leaved form of the same species.

ORTHOCARPUS ERIANTHUS, *Benth. Scroph. Ind., p.* 12, *& in DC. Prodr.* 10, *p.* 535. Grassy places near San Diego, California, March; *Dr. Parry.*

ORTHOCARPUS DENSIFLORUS, *Benth. l. c.* Dry hill sides, Monterey, California, April. Stem nearly simple, but the specimens are early ones, and later in the season no doubt the plant becomes much branched. Lower leaves simple, tapering to a very long narrow point. Appendages of the lower lip rather obtuse.

ORTHOCARPUS LACERUS, *Benth. Pl. Hartw., p.* 329. San Luis Obispo, California; *Dr. Parry.*

ORTHOCARPUS PURPURASCENS, *Benth. DC. Prodr.* 10, *p.* 536. Moist grassy places, near Monterey, California, April; *Parry.*

CORDYLANTHU LAXIFLORUS (sp. nov.): paniculato-ramosus, hirsutissimus, sublandulosus; foliis linearibus brevibus integerrimis rarius trifidis; floribus solitariis vel in ramulos breves adproximatis unibractcatis; calycis lobo postico apice bidentato; corollæ labio inferiori saccato subintegerrimo; antherarum loculo altero abortivo seu in stam. brevioribus plane nullo.—Rocky hills, Sonora, Mexico; *Thurber.* Also Great Salt Lake; *Col. Frémont,* 1843. Plant branched from the base, 1 or 2 feet high, turning dark colored in drying, very hirsute throughout with rather viscid and and sometimes rather glandular spreading hairs; branchlets very numerous, short, very leafy throughout, bearing from one to four or five flowers. Leaves 6 to 9 lines long, about a line wide. Calyx half an inch long, almost equalling the "bright yellow" corolla. Galea nearly straight, broad. Anthers one-celled and with a minute pendulous vestige of the second cell, at least in the longer stamens. A true congener of the Californian species, remarkable for its scattered flowers, and for the abortion of the smaller anther cells.

CORDYLANTHUS WRIGHTII (sp. nov.): paniculato-ramosus, glabellus, minute glandulosus; foliis 3–5-partitis filiformibus; bracteis conformibus haud ciliatis; floribus subcapitatis; calycis lobo postico 2–3-dentato; antherarum loculo altero pendulo etiam in staminibus brevioribus manifesto. Prairies, from 6 to 30 miles east of El Paso, Western Texas; *Wright,* (450.) Sand hills, Chihuahua; *Thurber.* This, far the most eastern of the genus, was first met with by Mr. Wright, who found it only in the autumn of 1849, in his first expedition, which was attended by many hardships, but which was very rich in its botanical results. This species is nearly related to C. filifolius; but it is not so rigid, has finer foliage (without hispid hairs,) less capitate and larger flowers, the more incurved corolla an inch and a quarter long, and the upper lip of the calyx is more or less 2–3-toothed or cleft at the apex. Seeds elongated-oblong, deeply farove-reticulated.

CORDYLANTHUS FILIFOLIUS, *Nutt.; Benth. in DC. Prodr.* 10, *p.* 597, California, (station not recorded, but probably Monterey;) *Parry, Shelton.* The middle lobe of the involucral bracts is somewhat dilated at the extremity and truncate-emarginate.

PEDICULARIS CENTRANTHERA (sp. nov.): acaulis, glabra; foliis pinnatifidis scapum bis superantibus, segmentis ovatis duplicato-dentatis margine denticulisque subcartilagineis discoloribus (albis;) spica oblonga densiflora; calycis cylindracei dentibus 5 aequalibus lanceolatis albido-marginatis; corollæ galea cucullata erostri edentula labio inferiore patente paullo longiore; filamentis glabris; antheris basi eximie bicalcaratis.—New Mexico, and on Ben More, April, *Bigelow;* the specimens from the latter locality nearly past flowering. This is unlike any other Pedicularis that I know of, and is distinguished by its awned or spurred anthers from all known species except P. grandiflora, *Fisch.*, with which it has little else in common. The

awns are so long that their tips often project beyond the hooded summit of the galea. Leaves all radical, 6 inches long, broadly linear in outline, fringed with fine and white teeth. Peduncle an inch long, spike (partly in fruit) 3 inches long. Tube of the calyx half an inch long; the lobes 3 lines long, their whitish margins somewhat crisped and erose. Corolla twice the length of the calyx, apparently pale purple; the tube slender; the helmet-shaped galea obtuse and not appendaged. Stamens inserted low down on the tube; anthers 2½ lines long, including the tapering spurs.

PEDICULARIS DENSIFLORA, *Benth. in Hook. Fl. Bor.-Am.* 2, *p.* 110. Dry gravelly plains; abundant near Monterey, California, May; *Parry;* also in Napa county, in the same State, March; *Thurber.*

LOGANIACEÆ.

MITREOLA PETIOLATA, *Torr. & Gray, Fl.* 2, *p.* 45. Wet places on Devil's river, and along the middle and lower Rio Grande; also in Santa Rosa valley, Chihuahua, September to October. Leaves larger and broader than usual.

POLYPREMUM PROCUMBENS, *Linn. in Act. Ups.* (1741,) *t.* 78; *Torr. & Gray, l. c.; Cham. & Schlecht. in Linnæa,* 5, *p.* 173. Common on the Lower Rio Grande, April; *Schott.*

BUDDLEIA HUMBOLDTIANA, *Roem. & Schult.* Rinconada Pass, December; *Thurber.*

BUDDLEIA MARRUBIIFOLIA, *Benth. in DC. Prodr.* 10, *p.* 441. On the Rio Grande from the mouth of the Pecos to Presidio del Norte; *Parry, Bigelow.* A neat shrub, 3–5 feet high, with heads of golden yellow odorous flowers, which turn to orange red. It is No. 1407 and 1780 of Berlandier's Coll.; 311 of Wislizenius, and 444 Gregg.

BUDDLEIA SCORDIOIDES, *H. B. K. Nov. Gen. & Spec.* 2, *p.* 345, *t.* 183. Valley of the Pecos, and in Sonora; *Wright,* (No. 447, 1486.) Mountains of Muerte, July; *Bigelow.* On the Rio Grande, below San Carlos, October; *Parry.* Coralitas, Chihuahua, August; *Thurber.*

BUDDLEIA RACEMOSA (n. sp.): fruticosa, 1–3-pedalis; foliis oblongis subovatisve obtusis inaequaliter crenato-dentatis basi subhastatis truncatisve raro abrupte cuneatis petiolatis glabratis subtus ramisque junioribus pulverulenteo-canescentibus atormiferis; capitulis globosis plurifloris breviter seu longiuscule pedunculatis in racemum virgatum elongatum fere nudum dispositis; tubo corollæ calyce tomentoso brevioribus. (Upper Guadalupe, etc., Texas; *Riddell, Lindheimer, Wright, Ervendberg.*) August, November. Var. *incana:* foliis pube mollissima supra tenuiter tomentuloso subtus crebre tomentoso incanis. San Pedro river; *Wright,* (446.)

EMORYA, Nov. Gen.

Omnino Buddleia, nisi filamenta stylusque exserta capillaria. Frutex 3–6-pedalis, ramosus; foliis oblongis subhastatis sinuato dentatis discoloribus; inflorescentia laxa racemoso-thyrsoidea; floribus sesqui-pollicaribus viridi-ochroleucis.

EMORYA SUAVEOLENS, (TABLE XXXVI.) Cañons of the Rio Grande, below the Presidio del Norte, October; *Parry.* Leaves opposite, 1—2 inches long, and from half an inch to an inch and a half broad, sinuately or repandly toothed, very obtuse or truncate at the base, glabrate above, whitish tomentose underneath; petioles scarcely half the length of the lamina, connected at the base by an elevated ring. Flowers in terminal cymulose panicles, sweet-scented; pedicels bibracteolate, the bracteoles subulate. Calyx tubular, 4–8-costate, 4-cleft nearly to the middle; segments nearly equal, linear-lanceolate erect. Corolla tubular, clongated, three times as long as the calyx, equally 4-cleft, the segments short and obtuse. Stamens 4, subaequal,

exserted; anthers 2-celled, bifid at the base, mucronulate at the summit; filaments slender, very smooth, inserted into the middle of the tube of the corolla. Ovary oblong-conical, the base surrounded by a glandular ring. Style conspicuously exserted, filiform, smooth, except at the base, which is a little pubescent, somewhat clavate at the summit; stigma small, capitate. Capsule oblong, apiculate, 2-celled, septicidal; valves 2-cleft at the summit; placentae thick, adnate to the axis. Seeds numerous, imbricated, the testa loose, cristate at both ends twice the length of the nucleus. Embryo straight. We have seen one or two pentamerous flowers. This genus is dedicated to Major William H. Emory, United States Commissioner to the Mexican Boundary Survey, who has taken the liveliest interest in the botany of the region explored under his command, and has afforded every facility to the gentlemen who had that department of science in charge. Mr. Miers, to whom we sent specimens of this plant, thought it might be referred to the tribe Buddleiæ. Indeed it is nearly related to Buddleia itself.

ACANTHACEÆ.

Elytraria tridentata, *Vahl. var.* caulescens, *Nees, in DC. Prodr.* 11, *p.* 64. Guadaloupe cañon, etc. Sonora; *Capt. E. K. Smith, Schott, Thurber.* Lower California; *Mr. Rich.* (No. 1647, *Wright.* No. 1207, *Coulter;* Mexico.)

Calophanes oblongifolius, *D. Don. in Sweet Fl. Gard.* 2, *t.* 181; *Nees, l. c. p.* 107. Valley of the Santa Cruz river, etc., Sonora; *Capt. E. K. Smith, Thurber.* Plains between Van Horn's Wells and Muerte, and down the valley of the Rio Grande to the Gulf of Mexico. (No. 1462, *Wright.*)

C. oblongifolius, var. Texensis, *Nees, l. c., p.* 108. C. linearis, *Engelm. & Gray, Pl. Lindh.* 2, *p.* 50, (*adnot.*) Common along the middle Rio Grande on both sides of the river, and in Sonora; flowering from April to September. (Nos. 1463 and 1464, *Wright.*)

Cryphianthus Barbadensis, *Nees, Del. Sem. Hort. Vratisl.* 1841, *& in DC. Prodr.* 11, *p.* 197. Dipteracanthus nudiflorus, *Engelm. & Gray, l. c., p.* 21. Moist places in central and western Texas, particularly along the lower Rio Grande; *Schott, Bigelow.* (Nos. 1454 and 1455, *Wright.*) Ruellia alba, *Nees* is, perhaps, not distinct.

Dipteracanthus? suffruticosus (n. sp.): caule glabro inferne fruticoso erecto; foliis obovato-oblongis glabriusculis subcoriaceis basi in petiolem attenuatis, margine retrorsum ciliatis; pedunculis axillaribus 1-floris; bracteolis oblongo-lanceolatis; calycis laciniis lanceolato-linearibus tubo corollæ elongato gracili subtriplo brevioribus. Presidio del Norte; July—August; *Parry.* Sides of rocky hills, valley of the Pecos. No. 1461, *Wright.* Plant apparently about a foot high. Leaves 1–1¾ inch long, acute or obtuse, smooth or slightly pubescent. Peduncles 2–4 lines long, the bracts a little longer than the calyx. Segments of the calyx sparsely ciliate. Corolla white; the tube 1½ inch long, very slender, somewhat dilated at the summit; lobes of the limb roundish-obovate. Stigma simple, (the inferior lobe abortive) Capsules 4-seeded; seeds hispid. This is the only suffruticose species of this genus known within the limits of our Flora.

Stenandrium barbatum, *Torr. & Gray, Bot. Pope's Rep. p.* 13, *t.* 4. Mountains and hill sides along the Rio Grande from El Paso to the mouth of the Pecos; March—April. (No. 1453, *Wright.*) Stem branching from a thick wood base. Flowers pale purple.

Schaueria parvifolia (n. sp.): suffruticosa e basi ramosorissima glanduloso-pubescens; foliis oblongis ovatisve acutis; spicis terminalibus subpaniculatis interruptis; floribus oppositis sessili-

bus bracteis bracteolisque subulatis; calycis laciniis lanceolato-subulatis; corolla (purpurea) subbilabiata, labio superiore integro vel vix emarginato, labiis oblongis æqualibus, labio inferiore profunde trifido; antherarum loculis parallelis contiguis muticis. Mountains and rocky places on the Cibolo of the Rio Grande; August; *Bigelow*. Monterey, Nuevo Leon; *Dr. Edwards*, *Dr. Gregg*. Howard Springs; *Schott*. (No. 1460, *Wright*. No. 1459 is an early state of the same, in which the flowering branches or spikes are not developed.) At Oak creek, western Texas, Mr. Schott collected specimens with larger and almost orbicular obscurely repand leaves. They probably grew in a shady place. Plant 6–12 inches long, sometimes diffuse. Leaves ½ to 1 inch in length, abruptly narrowed to a petiole which is 3 to 6 lines long. Flowers in loose compound spikes or panicles terminating the branches. Segments of the calyx subulate. Corolla 4–5 lines long; the segments nearly equal and about as long as the tube. Capsule 5 lines long, the lower half abruptly contracted and stipe-like; the upper part orbicular-ovate, acuminate, smooth, 4-seeded. Seeds discoid, muriculate, black.

Schaueria linearifolia (n. sp.:) suffruticosa e basi ramosissima glaberrima; foliis angusto-linearibus; spicis terminalibus gracilibus paniculatis, floribus distantibus, bracteis bracteolisque subulatis; calycis laciniis lanceolato-subulatis, corolla (purpurea) subbilabiata laciniis oblongis subæqualibus; antherarum loculis parallelis contiguis muticis. Rocks at the mouth of the Great cañon of the Rio Grande, and on the Burro mountains; June—October; *Bigelow*, *Parry*. (No. 436, *Wright*.) About a foot high. Leaves 8–10 lines long; the lowest ones a little broader and somewhat spatulate; upper ones half a line wide. Flowers solitary in the upper axils, the leaves being gradually reduced to subulate bracts, so that the inflorescence becomes spicate. Calyx, corolla, and fruit, as in the preceding species.

Drejera* Wrightii (n. sp.): ramis bifariam pubescentibus; foliis oblongo-lanceolatis acuminatis glabris, spicis unilateralibus nudis; calyce glanduloso-pubescente profunde 5-fido, laciniis oblongo-lanceolatis; corollæ tubo angusto calyce multoties longiore, labio inferiore tripartito, laciniis lanceolato-linearibus. Between the Guadaloupe river, Texas, and the Rio Grande; also near Monterey, Nuevo Leon; June—October. Nos. 435 and 1457, *Wright*. Plant apparently 3 to 4 feet high; dull grayish green; the branches terete, marked with two broad lines of soft pubescence. Leaves 1½–2 inches long, and 6–8 lines wide; green on both sides; the petiole 3–5 lines long. Spikes terminating the paniculate branches. Bracts about as long as the very short pedicels. Corolla an inch and a half long; purplish red; the tube slender, inflated at the base, the enlarged portion about the length of the calyx; segments of the upper lip a line and a half wide; upper lip emarginate. Anther-cells linear, contiguous, parallel. Capsule smooth, 6–7 lines long, the upper half rhombic-ovate and semeniferous; the lower attenuated to a narrow stipe and empty. Seeds commonly 2, rarely 3 or 4, lenticular, smooth.

Drejera puberula, (n. sp.): ramis bifariam pubescentibus; foliis oblongo-lanceolatis vel lineari-lanceolatis puberulis brevipetiolatis; spicis brevibus axillaribus terminalibusque foliosis; calyce glanduloso-pubescente profunde 5-fido, laciniis lineari-subulatis; corollæ tubo angusto calyce multoties longiore, labio inferiore tripartito, laciniis lanceolato-linearibus. Gravelly hills and ravines along the Cibolo of the Rio Grande; May—June; *Bigelow*. No. 1456,

* We have adopted Œrsted's view of the limits of Drejera, (in Vidensk. Medd. Naturhist. For Kjobenh. 1854, p. 134,) merely extending the character as to the calyx, which is 5-cleft or 5-parted. It includes Drejera, *Nees*, and Jacobinia § 2 of the same author in *DC. Prodr.* The latter genus was founded on *J. lepida*, and is the only species referred by Nees, to his first section. It differs so much from the species of the second group, which we would transfer to Drejera, that it may remain by itself.

Wright. Valley of the Rio Conchos, below Santa Rosa, Chihuahua; *Gregg.* A narrow leaved form; collected form is No. 1237, *Berlandier.* Collected at San Juan del Rio, between the city of Mexico and Queretaro. A shrub 4 to 8 feet high. Leaves 1–2½ inches long, sparsely pubescent on both sides; petioles 1–3 lines long. Flowers and fruit nearly as in the preceding species.

Drejera Thurberi (n. sp.): foliis (parvis) oblongis lanceolatisve pubescentibus; floribus fasciculatis quasi verticillatis foliis longioribus; calyce glanduloso-pubescente profunde 5-partitis, laciniis subulato-setaceis glanduloso-pubescentibus hirsutisve corollæ tubo vix triplo-brevioribus. Along water-courses, Las Animas, Sonora; June; *Thurber.* Sierra del Pajarito; *Schott.* Cañon of Guadaloupe; April; *Capt. E. K. Smith.* An ornamental shrub, 3–4 feet high, with a gray or whitish bark that separates in shreds. Leaves about three-quarters of an inch long, obtuse and acute. Flowers mostly resupinate. Corolla dull red, an inch or more in length; the tube funnel-form; lower lip 3-parted, the divisions linear-lanceolate. Capsules mostly 2-seeded, as long as the fructiferous calyx.

Drejera juncea (n. sp.): aphylla (an semper?); ramis virgatis minute pubescentibus; spicis remotifloris paniculatis; calyce profunde 5-fido glabrescente, laciniis subulatis corollæ tubo angusto multo brevioribus. In a sandy ravine, La Peña, Cohahuila; November; *Thurber.* Plant 3–4 feet high, entirely leafless where found by Mr. Thurber, but it may bear leaves early in the season. Flowers sessile in unilateral spikes, without either bracts or bracteoles. Calyx at first somewhat pubescent, but at length nearly or quite smooth. "Corolla scarlet," an inch or more in length; the tube slender; lower lip deeply 3-parted, the divisions linear and narrow. Capsule ovate above the middle, tapering to a narrow base below; 2-seeded. Besides the four species of Drejera here described, we have, from the collections of Dr. Gregg, another, which does not appear to have been noticed hitherto. It was found on the battle field of Paso del Gallinero. The specimens are not sufficient for a full description, but the following character will serve for its identification:

Drejera Greggii (n. sp.): ramis bifariam pubescentibus; foliis ovatis scabriuscule pubescentibus subulato-venosis; floribus fasciculatis foliis longioribus; calyce incano pubescente, lobis lanceolatis tubo subæqualibus. A stout shrub. Leaves 1–1½ inch long, somewhat roughly pubescent on both surfaces; petioles 1–2 lines long. Flowers dull purplish red, 1½ inch long; the segments of the lower lip nearly as long as the tube, and very narrow. Fruit not known.

Siphonoglossa Pilosella. Monechma Pilosella, *Nees, l. c., p.* 412. Adhatoda dipteracantha, *Nees, l. c., p.* 396. Western Texas, on the Lower Rio Grande, and in the adjoining Mexican States, common; flowering throughout the summer. (No. 1458, *Wright,* 396, 1850, and 501, 1845, *Lindheimer.* Plant 6 to 12 inches high, suffruticose, much branched. Leaves half an inch to one and a half inch long. Flowers three-fourths of an inch long, pale purple. This plant is not a Monechma, for the capsule is 4-seeded, and the habit is different. It is still further removed from Adhatoda. We think it belongs to the genus Siphonoglossa, (*Œrsted, l. c., p.* 159.) the character of which must be slightly modified to receive it. The calyx is 5-parted and the narrow upper lip of the corolla is emarginate. The anther-cells are nearly parallel and placed one above the other; the lower one conspicuously mucronate, and the upper one less so. No. 1213 of Coulter's Mexican collection is apparently an undescribed species of this genus.

Dianthera Americana, *Linn. Sp.* 1, *p.* 27; *Torr. Fl. N. York,* 2, *p.* 27. Justicia pedunculosa, *Michx. Fl.* 1, *p.* 7. Rhytiglossa pedunculosa, *Nees, l. c., p.* 339. Middle and western Texas.

Adatoda dipteracantha, *Nees, l. c., p.* 396. Rio Leona, Rio San Pedro and near Eagle Pass, Western Texas; March, April; *Schott, Bigelow.* (No. 1458, *Wright.*) Valley of the Conchos and near Los Garzas; *Gregg.* Monterey, Neuvo Leon; *Dr. Edwards.* A stouter form, more pubescent and with the stem decidedly shrubby at the base, was found on the mountains of Muerte by *Bigelow.* It is No. 434 of Wright's earlier collection, and may be Monechma Pilosella, *Nees.*

Sericographis Californica (*Gray MSS.*): "foliis parvis ovalibus ovatis vel subcordatis, utrinque cum ramis teretibus pube molli brevissima tomentulosis; racemis brevibus laxifloris; floribus aut breviter aut longiuscule pedicellatis; bracteolis lineari-subulatis calyce brevioribus: corolla rubella longe tubulosa, labiis truncatis, superiore emarginato, inferiore 3-dentato; antherarum loculis subæqualibus sejunctis, inferiore basi calcare obtuso brevi incurvo auctis. Beloperone Californica; *Benth. Bot. Voy. Sulph. p.* 38? Jacobina Californica, *Nees in DC. Prodr.* 11, *p.* 729. Southern part of California; *Frémont.* Vallecita, California; *Thurber.* Although not agreeing in every respect with the description, these incomplete specimens probably belong to Bentham's Beloperone Californica, which Nees has not inaptly referred to his genus Jacobinia; but it surely belongs to Sericographis. It has the hairy lines, answering to the bases of the suppressed stamens, well-marked. In one blossom there were three perfect stamens. The upper lip of the corolla neatly shows the two long membranous lamellæ which connive and form a long channel containing in the bud the upper part of the style; a character which Œrsted has added to the description of this and some related genera." A. Gray.

Adhatoda? longiflora (n. sp.): caule erecto minute pubescente suffruticoso; foliis lanceolato-oblongis glabris sursum angustatis acutiusculis basi in petiolum attenuatis floribus fasciculatis axillaribus terminalibusque sessilibus, tubo corollæ elongato gracili. Read between Zuñi and Alta Sonora, September; *Schott.* Plant apparently about a foot high; branches erect and slender. Leaves (including the petiole) 1½–2 inches long and 3–5 lines wide, entire, nearly smooth. Flowers fascicled in the uppermost axils. Calyx a little shorter than the lanceolate bracts and longer than the subulate bracteoles, the segments subulate. Corolla white?; border 4-lobed, the three lower segments oblong, the upper segments bifid at the summit. Stamens 2, exserted; anther-cells separate, one placed above the other, obtuse at the summit, acute at the base. Ovary 4-ovuled. This seems to be distinct from any species of the genus described by Nees.

Dicliptera resupinata, *Juss. in Ann. du Mus.* 9, *p.* 268 *fide Nees, l. c., p.* 474? D. thlaspoides, *Nees, l. c.* Santa Magdalena and Bacuachi, Sonora, September, October; *Thurber, Schott.* (No. 1465, *Wright.*) Our plant is a perennial, and some of the specimens seem to be even suffruticose, but D. resupinata and thlaspoides are said to be annuals. The length of the peduncle is variable; in *Schott's* and *Wright's* specimens it is as long as the lateral divisions, but in *Thurber's* they are sometimes very short, and the middle division much elongated. The heads, also, although mostly 1-flowered, are sometimes 2-flowered. The bracts are mostly broadly cordate, but in Mr. Thurber's specimens from Bacuachi they are ovate and obovate.

Tetramerium nervosum, *Nees in Benth. Bot. Sulph. p.* 148, *t.* 48. Var. hispidum foliis ovato-oblongis obtusiusculis vel acutis (non acuminatis) Santa Cruz and Fronteras, Sonora, June, September; *Thurber.* Sierra de los Janos, in the same State; *Schott.* Rocky hills, Santa Rosa, Chihuahua; *Bigelow.* Valley of a mountain stream near Sonoita, Sonora; No. 1466, *Wright.* Sierra de San Carlos, Tamaulipas; *Berlandier*, No. 3181. Mexico; *Coulter*, No. 1206. Our

plant accords very nearly with the description and figure here quoted, but almost equally with the T. polystachyum and T. hispidum, which seem to be scarcely distinct from T. nervosum. The bracts are both appressed, and with spreading or even recurved tips, in the same specimen. The base of the stem is more or less woody.

Tetramerium platystegium (n. sp.): caule minutissime pubescente; foliis oblongo-lanceolatis inferioribus obtusis superioribus acutiusculis utrinque scabriuscule puberulis; spicis ovatis terminalibus; bracteis late cordatis acuminatis appressis membranaceis leviter 3-5-nervibus; calyce 5-partito; corolla bracteis subæquantibus, tubo gracili, limbi laciniis oblongis subæqualibus. Ringgold barracks near Rio Grande City, on the Lower Rio Grande; May; *Schott.* Stem much branched; the branches erect and slender. Leaves 1–2 inches long and 4–6 lines wide, abruptly narrowed at the base into a petiole which is 2–3 lines long. Spikes 1 to 1½ inch long. Bracts 6–7 lines long and 5–6 lines wide, with a short mucronate acumination, closely sessile, somewhat roughly puberulous. Calyx much shorter than the tube of the corolla, the segments subulate-lanceolate. Corolla purple, subbilabrate, the divisions obtuse. Stamens 2, inserted at the summit of the tube of the corolla; anther-cells parallel, contiguous, rather acute at the base. Stigma minute, capitate, 2-lobed. Capsule narrowed at the base, ovate above the middle, 4-seeded. Seeds lenticular, muricate. In the 5-parted calyx this species differs from Tetramerium, as the genus is characterized by Nees; but in T. ovatum, *Œrst.* the calyx is also 5-parted.

VERBENACEÆ.

Bouchea linifolia, *Gray in Sill. Jour.* (*ser.* 2,) 16, *p.* 98, (*sine desc.*): suffruticosa? glaberrima; ramis sulcato-angulatis; foliis linearibus vel lanceolato-linearibus acutissimis integerrimis; spicis laxiusculis; floribus subsessilibus; bracteis subulatis calyce multo-brevioribus; capsula calyce breviore. Valley of the San Pedro, Western Texas; September, October; *Schott.* (Nos. 436, 449, and 1509, *Wright.*) Plants a foot or more high, with long, slender, erect branches. Leaves 1—2 inches long and 1–2 lines wide. Spike 2–4 inches long. Calyx cylindrical; the subulate teeth scarcely one-fourth the length of the tube. Capsule obtuse, villous at the summit.

Bouchea spathulata (n. sp.): suffruticosa; ramis teretibus; foliis crebris obovatis integerrimis obtusis vel brevissime mucronatis puberulis; spicis laxis; floribus sessilibus; bracteis foliaceis oblanceolatis, capsula calyce breviore acuta. Great Cañon of the Rio Grande near Mount Carmel; October; *Parry.* Plant 1–2 feet high. Leaves about three-fourths of an inch long, often fascicled in the axils and crowded on the short branchlets, somewhat scabro-puberulous. Bracts nearly as long as the calyx. Tube of the corolla nearly three-fourths of an inch long, and the limb half an inch in diameter.

Bouchea Ehrenbergii, *Cham.; Schauer in DC. Prodr.* 11, p. 558. Sonora, Mexico; *Thurber.* (No. 1508, *Wright.*)

Lippia Wrightii, *Gray in Sill. Jour. l. c.* Aloysia scorodonoides, *H. B. K. nov. Gen. & Sp.* 2, *p.* 260: ramis subtetragonis patentibus, junioribus pedunculisque pulvereo-canescentibus; foliis oppositis ovatis in petiolum brevem angustatis obtusis crenatis reticulato-rugosis supra scabro-hirtis subtus tomentoso-candicantibus; pedunculis axillaribus folium subæquantibus; spicis cylindricis laxiusculis; bracteis ellipticis acutis calyce longioribus; calyce ovato hirsuto, dentibus ovatis. Rocky hills along the Cibolo of the Rio Grande, August; near the Hot Springs, and on the Burro mountains; September, November; *Bigelow.* Presidio del Norte,

September ; *Parry.* (No. 460 and 1506, *Wright.*) Sonora and Chihuahua, September, November; *Thurber.* A shrub 2–4 feet high, with numerous slender spreading branches. Leaves half an inch to three-fourths of an inch long, abruptly tapering at the base into a short petiole. Spikes 1–2 inches long in the axils of the upper leaves, often forming a terminal panicle. Flowers at first closely approximated, but becoming more or less distinct. Calyx densely clothed with white hairs, about a line long. Corolla nearly twice as long as the calyx.

Var. MACROSTACHYA : foliis basi subcordatis , spicis longissimis. Cretaceous rocks near Ringgold Barracks on the Rio Grande ; June ; *Schott.* West of Cerralbo ; May ; *Gregg.*

LIPPIA LYCIOIDES, *Stend. Nomencl. ed.* 2, *pars* 2, *p.* 54 ; *Schauer, l. c.* Rocky places along the Rio Grande and its tributaries from El Paso to the Gulf; also Chihuahua, Cohahuila and Nuevo Leon, April—October. (No. 1505, *Wright.* No. 2547 and 3004, *Berlandier.*) A shrub, commonly 3–5 feet high, but sometimes attaining the height of 10 feet. Flowers very fragrant.

Var. foliis ternis majoribus acutis grosse serrato-dentatis. Presidio del Norte ; August ; *Bigelow.*

Var. foliis oppositis pauci serrato-dentatis obtusis. Presidio de Rio Grande ; *Parry.*

LIPPIA BERLANDIERI, *Schauer, l. c., p.* 575. Plains near San Felipe, September : also hills and stony places near Eagle Pass ; *Bigelow.* Cretaceous hills on the Lower Rio Grande, March—October ; *Schott.* Mount Carmel cañon, October ; *Parry.* Plant suffruticose, 2–3 feet high. (Nos. 459 and 1507, *Wright* ; Nos. 832 and 2252, *Berlandier.*)

LIPPIA GEMINATA, *H. B. K. Nov. Gen. & Sp.* 2, *p.* 215 ; *Schauer, l. c., p.* 582. On the Rio Grande, from Ringgold Barracks downward. This exactly accords with Berlandier's plant, except that the leaves are smaller.

LIPPIA NODIFLORA, *Michx. Fl.* 2, *p.* 15 ; *Schauer, l. c.* San Luis Rey, California, September ; *Parry.* Common along the Rio Grande.

LANTANA CANESCENS, (*H. B. K. Nov. Gen. & Sp.* 2, *p.* 259 ; *Schauer in DC. Prodr.* 11, *p.* 607) foliis oppositis ternisve ovato-lanceolatis leviter crenato-serratis basi in petiolum brevem attenuatis supra scabriusculis subtus molliter incano-pubescentibus ; pedunculis folium subæquantibus ; capitulis vix involucratis demum ovatis. Santa Rosa, Cohahuila ; *Bigelow.* This corresponds so minutely with the description of L. canescens *DC. Prodr.*, except in the leaves being sometimes ternate, that little doubt can exist as to its being the same species. It occurs in none of the collections but those of Dr. Bigelow.

LANTANA MACROPODA (n. sp.) : suffruticosa, inermis, appresse hirsutula ; foliis ovatis grosse et acute seratis basi abrupte attenuatis utrinque scabriusculis subtus pallidioribus ; pedunculis folio 2–3-plo-longioribus ; capitulis paullo elongatis ; bracteis ovatis cuspidato-acuminatis, extimis majoribus involucrantibus ; fructibus exsuccis. Ravines and rocky places on the Rio Grande, from the mouth of the Rio San Pedro to 200 miles above ; flowering the whole season. Saltillo; *Gregg* ; (Nos. 458 and 4513, *Wright.*) Stem 2–3 feet high, obtusely quadrangular. Leaves opposite, 1–2 inches long, somewhat scabrous with a short appressed hirsute pubescence ; veins prominent underneath ; petiole or attenuated base of the leaf, about half as long as the lamina. Peduncles 3—6 inches long ; heads at first hemispherical, but at length ovate ; the rhachis cylindrical and faveolate. Flowers sweet-scented ; corolla white ; the tube scarcely exserted. Mature fruit about the size of a hemp seed, nearly dry, with a thin sarcocarp ; the endocarp bony costate-rugous ; cocci cohering. Seeds suspended from the funicle which arises from near the base

of the cell; near the last, and L. hispida, *Kunth.*, but the latter species has serrato-crenate bullate-rugous leaves, and a juicy fruit.

LANTANA ODORATA, *Linn; Schauer, l. c., p.* 603. Var. BERLANDIERI: foliis rhomboideo-oblongis acutiusculis supra scabriusculis subtus pallidioribus vix canescentibus. Ramos, Mexico, *Thurber.* (No. 3184, *Berlandier.*) Plant 1–3 feet high, slender. Leaves about an inch long. Peduncles (in Berlandier's specimens) much longer than the leaves. Flowers white.

LANTANA HORRIDA, *H. B. K. l. c. p.* 211. Var. PARVIFLORA, *Schauer, l. c. p.* 597. Near San Antonio, Texas; *Thurber.* Hills and dry prairies along the Rio Grande, also on the seacoast near Indianola; September—October; *Schott.* (No. 1511, *Wright*; Nos. 2114 and 2310, *Berlandier.*) Banks of the Escondido and near the Painted Caves; *Bigelow.* We name this plant on the authority of an authentic specimen of Berlandier's, No. 2310, which is certainly the same as ours. It is a shrub 3 or 4 feet high, often quite unarmed, and usually the prickles are sparse and extremely short. Flowers yellow, turning to a deep brown. The fruit is about the size of a peppercorn and is juicy when ripe. It may be only a variety of L. Camara.

VERBENA HASTATA, *Linn.; Torr. Fl. N. York*, 2, *p.* 51. V. hastata, *Lam. Ency.* 8, *p.* 548; *Schauer in DC. Prodr.* 11, *p.* 545. Near the Copper Mines, June—July; *Bigelow.*

VERBENA PROSTRATA, *R. Br. in Hort. Kew.* (*ed.* 2) 4, *p.* 41; *Schauer, l. c. p.* 547. Grassy places near Monterey, California; *Parry.*

VERBENA OFFICINALIS, *Linn.*; *Schauer, l. c.* Rocky places between Van Horn's Wells and Muerto, July; *Bigelow.* Seashore, near Galveston, Texas, September; *Schott.* Cañon of Guadaloupe, Sonora; *E. K. Smith.* San Diego, California; *Thurber.*

Var. HIRSUTA: incano-hirsuta, assurgens, bracteis calycem subæquantibus. Near the Copper Mines, New Mexico, June; *Bigelow.*

VERBENA CANESCENS, *H. B. K. Nov. Gen. & Sp.* 2, *p.* 274, *t.* 136; *Schauer, l. c.* V. remota, *Benth. Pl. Hartw. p.* 21. Western Texas, along the Rio Grande, and in the adjoining Mexican States. (Nos. 1496 and 1497, *Wright.* Nos. 827, 955, 1485, 2054, and 2247, *Berlandier.* No. 77, (1846,) *Lindheimer.* No. 594, *Fendler.*) Some forms of V. officinalis approach this species; and V. strigosa, *Hook. Comp. Bot. Mag.* 1, *p.* 176, seems to be hardly distinct.

VERBENA BRACTEOSA, *Michx. Fl.* 2, *p.* 14; *Scnhauer, l. c., p.* 549. Sa Diego mountains, on the Rio Grande, and sandy places, El Paso, etc.; May—October; *Bigelow, Thurber.* (No. 1499, *Wright.*)

VERBENA AUBLETIA, *Linn.; Schauer, l. c., p.* 554. V. bipinnatifida, *Schauer, l. c.* Glandularia bipinnatifida, *Nutt. Trans. Amer. Phil. Soc.* (*n. ser.*) 5, *p.* 184; common everywhere in Western Texas, New Mexico, extending to Chihuahua and Sonora. (Nos. 1501, 1502, and 1503, *Wright.*) Flowers throughout the season. We have in vain sought for characters to distinguish the two species here united. They vary in the number and form of the segments of the leaves. The ripe nutlets are the same in both. We know of no plants which, in the wild state, are more prone to hybridize than the North American species of this genus. Dr. Engelmann has enumerated (in Silliman's Journal, vol. ?,) many intermediate forms between V. officinalis, V. hastata, V. urticæfolia, and V. stricta, which he found in the vicinity of St. Louis, Missouri.

AVICENNIA TOMENTOSA, *Jacq.; Schauer in DC. Prodr.* 11, *p.* 699. Mouth of the Rio Grande, October—November; *Schott.* Also found, many years ago, at Tampa Bay, Florida, by *Dr. Leavenworth*, and at Key West by the late *Mr. Blodgett.*

LABIATÆ.

HYPTIS SPICATA, *Poir.; Benth. in DC. Prodr.* 12, *p.* 121? San Bernardino, Sonora, July; *Thurber.* Differs in the unequal teeth, the longer of which are not much shorter than the tube.

HYPTIS LANATA, *Benth. Bot. Sulph. p.* 42, *t.* 20. On the lower Gila; *Emory.* Major Rich found it also in lower California.

MENTHA CANADENSIS, *Linn.; Benth. in DC. Prodr.* 12, *p.* 173. Banks of the Mimbres, October; *Bigelow.* California; *Shelton.*

LYCOPUS EUROPÆUS, *Linn.* Var. SINUATUS, *Gray, Man. ed.* 2, *p.* 304. L. sinuatus, *Benth.;* L. exaltatus & L. sinuatus, *Ell.* River banks near San Luis Rey, California, October; *Parry.*

MONARDELLA UNDULATA, *Benth. in DC. Prodr.* 12, *p.* 190. Dana's Ranch, California; *Parry.*

MONARDELLA CANDICANS, *Benth. Pl. Hartw. p.* 330; *Torr. Bot. Whippl. Rep. p.* 123. Mountains east of San Diego, California, June; *Parry.* Also found by *Mr. Shelton.*

MONARDELLA ODORATISSIMA, *Benth. in. DC. Prodr. l. c.* Near San Diego, California, and on the mountains east, June; *Parry.*

MONARDELLA VILLOSA, *Benth. Bot. Sulph. p.* 42, *t.* 21. San Felipe, California, June; *Parry.* Var. LEPTOSIPHON: foliis integerrimis vel obsolete repando-dentatis; corollæ tubo calyce duplo longiore. Stem apparently assurgent. Leaves three-fourths of an inch long, ovate, abruptly tapering at the base to a petiole which is half the length of the lamina. Bracts ovate, acute, slightly colored. Head nearly an inch in diameter, about 30-flowered. Calyx oblong-cylindrical; teeth lanceolate, acute, nearly equal. Tube of the corolla slender, a little tapering upward; segments of the limb linear, rather acute, scarcely equal. Stamens exserted; anther-cells at length so much divaricate as to be in a line and almost confluent. Differs from the ordinary form of M. villosa in being much less hairy, the leaves not crenate-serrate (as they are in our California specimens, and in the figure quoted above), the longer petioles, less crowded heads of flowers, and especially in the long-exserted tube of the corolla.

MICROMERIA DOUGLASII, *Benth. Lab. p.* 372. Pine woods near Monterey, California, May; *Parry.*

MICROMERIA XALAPENSIS, *Benth. Lab. l. c.* San Antonio, Texas, April; *Thurber.*

CALAMINTHA GLABELLA, *Benth. in DC. Prodr.* 12, *p.* 230. Cunila glabella, *Michx. Fl.* 1, *p.* 13. San Antonio, Texas, April; *Thurber.*

POGOGYNE DOUGLASII, *Benth. Lab. p.* 414. Valley of the Sacramento, and frequent in other parts of California; *Fitch, Stillman, Shelton,* etc. We have never been able to distinguish satisfactorily more than one species of this genus. We have numerous forms of it, but they seem to pass into each other.

HEDEOMA MOLLIS (n. sp.): incano-tomentosa; foliis ovatis obtusis integris basi in petiolem brevem attenuatis; verticillastris 6–12-floris; floribus brevipedicellatis; calycibus cylindricis non gibbosis, dentibus brevissimis; staminibus inferioribus subexsertis, superioribus rudimentis sterilibus.—Cliffs near Puerte de Paysano, September; *Bigelow.* Plant somewhat ligneous at the base, which throws up several slender branches 12 to 15 inches in height. Leaves three-fourths of an inch long and 3 or 4 lines wide. Flowers crowded in axillary cymules. Calyx about 3 lines long, slightly curved, the teeth one-fifth the length of the tube. Corolla about as

long as the calyx. Upper lip a little notched. Lower lip 3-lobed; the middle lobe emarginate; lateral ones entire. Stamens 4; the two inferior ones perfect and nearly exserted; anthers with divaricate oblong cells; upper stamens reduced to simple short filaments.

HEDEOMA PLICATA (n. sp.): suffruticosa e basi ramosa; ramis erectis pubescentibus; foliis rhombeo-ovatis utrinque acutis argute serratis crebre et eximie penninerviis subplicatis, supra scabriusculis subtus pubescentibus; corollis calyce gibboso duplo longioribus. Dry ravines near the Limpio mountains, July; *Bigelow.* (No. 464 and 1718, *Wright.*) Branches about a span high, retrorsely pubescent. Leaves mostly shorter than the internodes, 3–4 lines long, of rather a thick texture, tapering to a petiole about a line in length, the numerous straight and parallel veins very prominent underneath. Verticils 2–6-flowered, the pedicels 1–2 lines long. Calyx gibbous at the base, distinctly 2-lipped; teeth of the upper lip ovate, mucronate, half the length of the subulate ones of the lower lip. Tube of the corolla exserted, more than half the length of the calyx; upper lip 3-lobed, the middle lobe longer and emarginate; the upper lip also emarginate.

HEDEOMA DENTATA (n. sp.): annua; ramis erectis gracilibus pubescentibus; foliis petiolatis oblongo-lanceolatis acutis pauci-dentatis; venis prominulis; verticillis remotis 6–10-floris; calyce subbilabiato vix gibboso, dentibus e basi lato-subulatis inequalibus, labii superiore divergentibus. Near Santa Cruz, Sonora, September; *Thurber.* Near the Copper Mines, October; *Bigelow.* About a foot high; much branching from the base, forming a bunch about a foot in diameter; the internodes of the branches rather distant. Leaves 5 lines long, tapering at the base into a short petiole, acutely 3–4-toothed on each margin; the veins underneath conspicuous, thicker at the extremity. Verticils usually not more than 6-flowered. Calyx slightly gibbous toward the base; teeth of the lower lip nearly twice as long as those of the upper. Corolla twice as long as the calyx. Upper lip emarginate; lower 3-lobed, the middle lobe notched. Near H. Drummondi, but in that species the leaves are entire with inconspicuous nerves, and the teeth of the calyx are all connivent.

Var. *nana*: foliis minoribus late ovatis vel ovato-oblongis interdum subintegerrimis. Rocky hills of the Rio Grande, near El Paso, April—May. Plant usually from 3 to 6 inches high, much branched from the base, incano-pubescent. Leaves one-third of an inch long. Bracts subulate, shorter than the pedicels. Verticils approximated, 3–12-flowered. Calyx evidently bilabiate, gibbous; upper teeth much shorter than the lower, subulate-lanceolate from a broad base; lower teeth subulate.

HEDEOMA INCANA (n. sp.): fruticosa, ramosissima, incana; ramis erectis foliosis; foliis linearibus vel oblongo-linearibus integerrimis obtusiusculis, axillis fasciculatis; verticillastris 4–6-floris, floribus subsessilibus; calycibus oblongo-cylindricis villosissimis subaequaliter 5-dentatis. Sandy places near El Paso, April—May; *Parry, Wright & Bigelow.* (No. 1523, *Wright.*) Plant about 2 feet high with the taste and odor of sage; the branches slender, sometimes apparently assurgent, slender, hoary, like the leaves, with a minute close pubescence. Leaves about three-fourths of an inch long, sessile, tapering at the base, flat. Flowers about 5 lines in length. Calyx densely villous with long white hairs; the teeth lanceolate. Corolla more than twice the length of the calyx; upper lip notched; lower 3-lobed, the middle lobe deeply emarginate; tube short, villous in the throat. Fertile stamens 2, a little exserted; the connective very thick; the anther-cells widely divaricate below, opening upward. Abortive rudiments of the superior stamens minute. Style strongly and rather unequally 2-cleft at the summit.

Allied to Keithia, but with a different habit, and a shorter corolla than in any of the described species of that genus. In the calyx it differs from both genera. It may remain in Hedeoma for the present, but, if other species like it should be found, it may be the type of a new genus.

HEDEOMA DRUMMONDI, *Benth. Lab. p.* 308, *& in DC. Prodr.* 12, *p.* 245. H. acinoides, *Scheele in Linnæa* 22, *p.* 592? Sandy hills, Mexico, western Texas, and Chihuahua. (No. 463, 1518, 1519, and 1522, *Wright.*; No. 620, *Fendler*, N. Mex.; No. 285, fasc. II. *Lindheimer.*) This species is certainly annual, and never perennial nor suffrutescent, as Bentham supposed it to be. It is a variable plant. Sometimes it is dwarf and cespitose; the leaves are linear-oblong or ovate, and sessile with a narrow base, or with a petiole nearly as long as the lamina; the calyx is more or less hairy, and when the plant grows in shady places the tube of the corolla is about the length of the calyx, while usually it is only about half as long. H. ciliata, *Nutt. Pl. Gamb. p.* 183, is probably only a variety of this polymorphous species.

SPHACELE CALYCINA, *Benth. Lab. p.* 568, *and in DC. Prodr.* 12, *p.* 255. (TAB. XXXVII.) Near Monterey, California, May; *Parry.* A strong plant, 2–3 feet high, somewhat shrubby at the base.

SALVIA LANCEOLATA, *Willd. Enum.* 1, *p.* 37; *Benth. in DC. Prodr.* 12, *p.* 299. S. trichostemoides, *Pursh, Fl.* 1, *p.* 19. Borders of the Rio Grande in western Texas, Chihuahua, and New Mexico; west to the Copper Mines. (No. 469, 470, and 1529, *Wright;* the last a very narrow leaved form. No. 606 β & 608, *Fendl.*, N. Mex., the former a small state of the plant.)

SALVIA AZUREA, *Lam.; Benth. l. c. p.* 302; *Bot. Mag. t.* 1728. S. angustifolia, *Michx. Fl.* 2, *p.* 13. S. Pitcheri, *Torr. in Benth. Lab. p.* 251. S. cæsia, *Scheele, in Linnæa*, 22, *p.* 588. Common along the Rio Grande, in New Mexico. S. farinacea, *Benth.* seems hardly distinct from this species. No. 468 *Wright*, is a narrow-leaved form.

SALVIA ALBIFLORA, *Mart. & Galeotti in Bull. Acad. Brux. v.* 11, *ex Benth. in DC. Prodr.* 12, *p.* 307. In damp situations, Santa Magdalena, Sonora; *Thurber, Schott.* Plant about 3 feet high, paniculately branched above, smooth. Lower leaves 1½–2 inches long and an inch broad, on petioles an inch or more in length, acuminate, mostly acute at the base, serrate. Whorls about 6-flowered, rather closely approximate, forming long racemes, which are nearly leafless. Pedicels two-thirds as long as the calyx. Upper lip of the calyx entire; lower 2-toothed. Corolla about 4 lines long; the upper lip strongly pubescent.

SALVIA SPICATA, *Roem. & Schult. Syst. Mant.* 1, *p.* 202; *Benth. l. c. p.* 315? Apache Springs, March; *Parry.* Our plant accords with the description of Roemer & Schultes, and it appears also to be the same as S. breviflora, *Moc. & Sessé.*

SALVIA BALLOTÆFLORA, *Benth. Lab. p.* 270. S. laxa, *Benth. in DC. Prodr.* 12, *p.* 313. On the Lower Rio Grande and its tributaries, and in the Mexican States south of the Gila; common. (No. 471, 472, 1524, and 1525, *Wright.* No. 821, 1431, 2240, and 3186, *Berlandier.*) A shrubby species, 2–5 feet high, variable in the form and size of the leaves. Flowers bright purplish-blue. Our numerous specimens show a gradual transition from S. ballotæflora to S. laxa. "The plant is used as an aromatic by the Mexicans, who call it Majorano," *Schott.*

SALVIA MICROPHYLLA, *H. B. K. Nov. Gen. & Spec.* 2, *p.* 294; *Benth. in DC. Prodr.* 12, *p.* 335. Mount Carmel, near the Great Cañon of the Rio Grande; *Parry.* Dry prairies between Elm creek and Turkey creek; *Schott.* Mr. Bentham, to whom I sent specimens of this plant, says, that it is "very near S. microphylla, but the leaves are almost entire and not rugose; the calyces also are longer." It is a shrubby and apparently somewhat spreading plant. The leaves are

oblong, obtuse, narrowed at the base into a short petiole, green and nearly smooth on both sides, and rarely with one or two teeth on each margin. The flowers are in terminal racemes. Corolla bright purplish-red, more than an inch long, the galea about two-thirds the length of the lower lip, and a little hairy.

SALVIA PSEUDO-COCCINEA, *Jacq.; Benth. in DC. Prodr.* 12, *p.* 343. Neuvo Leon; *Thurber.* I have specimens of what appears to be the same species, raised in the Cambridge (Mass.) botanic garden, from Texan seeds collected by Mr. Wright. Perhaps not sufficiently distinct from the next species.

SALVIA COCCINEA, *Linn. Mant. p.* 88; *Benth. l. c.* On the Rio Grande, from Laredo downward; *Schott, Dr. Edwards.* Los Nogales, Sonora; *Capt. E. K. Smith.*

SALVIA ROEMERIANA, *Scheele in Linnæa*, 22, *p.* 586. S. porphyrata, *Decaisne in Rev. Hortic.* 1854, *ex Hook. Bot. Mag. t.* 4939. Crossing of the San Pedro river, Texas, and on Live Oak creek, a tributary of the Pecos; also on mountains near the Rio Grande, in Chihuahua; *Bigelow.* Rio Mimbres, New Mexico; *Thurber.* (No. 473 and 1526, *Wright.*) This species varies greatly in the foliage. In the form represented in the *Bot. Mag. l. c.*, (which is the same as Wright's and Bigelow's from Live Oak creek,) the leaves are mostly simple, (rarely pinnatifid, with a pair of small remote segments,) broadly cordate, 1½–2 inches wide and coarsely runcinate-toothed. The description of Scheele applies to Thurber's specimens and to those collected by Bigelow in Chihuahua. It is a showy species, with large bright scarlet flowers.

SALVIA CARDUACEA, *Benth. Lab.*, *p.* 302; *Bot. Mag. t.* 4874. S. gossypina, *Benth. Pl. Hartw. p.* 330. Near San Diego, California; *Parry.*

SALVIA COLUMBARIÆ, *Benth. l. c.; Torr. Bot. Whippl. Rep. p.* 123. San Pasqual, California, May; *Thurber.* Dry hills near San Diego, California; *Parry.* This plant is called *Chia*, by the native Californians. The seeds abound in mucilage, which is imparted to cold water, and the beverage thus obtained is much esteemed as a summer drink. *Thurber.*

SALVIA TEXANA. SALVIASTRUM TEXANUM, *Scheele in Linnaea,* 22, *p.* 585; *Torr. & Gray, Bot. Pope's Rep. p.* 169, *t.* 6. Western Texas and New Mexico, along the Rio Grande, mostly in high and dry situations. (No. 466, *Wright.* No. 1090 and 2520, *Berlandier.*) We have removed this plant to Salvia, from which it does not differ generically. It hardly accords with any of Bentham's section, but is nearest Heterosphace, from which it differs in habit and in the calyx closed by hairs.

AUDIBERTIA GRANDIFLORA, *Benth. Lab. p.* 312, *& in DC. Prodr.* 12, *p.* 359. (TAB. XXXVIII.) In woods near Santa Barbara, California, March; *Parry.* Stem herbaceous 2–3 feet high. Flowers bright crimson, large and highly ornamental.

AUDIBERTIA STACHYOIDES, *Benth. l. c.* Sandy hills, between San Diego and Monterey, March—May; *Parry, Thurber.* A common shrub in California.

AUDIBERTIA POLYSTACHYA, *Benth. l. c.* Abundant near San Diego, California, May; *Thurber.* Stem 3–4 feet high, slightly branched, bearing numerous spikes in a long terminal panicle.

MONARDA ARISTATA, *Nutt. Trans. Amer. Phil. Soc. n. ser.* 5, *p.* 186; *Benth. in DC. Prodr.* 12, *p.* 363. Between San Antonio and the Rio Grande, Texas, and from the Presidio del Norte to Laredo, April—September. A low form, which I think is M. pectinata, *Nutt. Pl. Gamb. p.* 182, was found by Dr. Bigelow at the Copper Mines, New Mexico. It is also No. 1531, *Wright.*

MONARDA PUNCTATA, *Linn.; Benth. l. c.* Sea shore near Galveston, Texas, September; *Schott.*

MONARDA FISTULOSA, *Linn.; Benth. l. c.* M. Lindheimeri, *Engelm. & Gray, Pl. Lindh.* 1, *p.* 20. Copper Mines; July; *Bigelow.*

DRACOCEPHALUM PARVIFLORUM, *Nutt. Gen.* 2, *p.* 35; *Torr. Fl. N. York*, 2, *p.* 75; *Benth. in DC. Prodr.* 12, *p.* 400. Dry ravines, Organ mountains, April; *Bigelow, Wright.*

CEDRONELLA CANA, *Hook. Bot. Mag. t.* 4618. Near the Copper Mines; *Bigelow, Wright.* Burro mountains; *Bigelow.* Perhaps not distinct from C. Mexicana. No. 1532, *Wright*, has broadly cordate coarsely toothed leaves, which are 1½ inch long and more than an inch wide. In the specimens from the Copper Mines (No. 1533, *Wright*) the leaves are ovate or oblong, 8–10 lines long and rather sparingly toothed or almost entire. Our specimens from the Burro mountains have lanceolate leaves, of which only a few of the lowest are slightly toothed near the base.

CEDRONELLA PALLIDA, *Lindl. Bot. Reg.* 32, *t.* 29? Janos, Chihuahua, May; *Thurber.* Var. foliis ovato-oblongis basi acutiusculis. (No. 1534, *Wright.*) Differs from C. cana in the more dense and spike-like inflorescence, and in corolla being only a little longer than the calyx.

SCUTELLARIA TUBEROSA, *Benth. Lab. p.* 441; *Torr. Bot. Whippl. Rep. p.* 123. Near Monterey, California; *Parry;* and Napa county in the same State; *Thurber.*

SCUTELLARIA RESINOSA, *Torr. in Ann. Lyc. N. York*, 2, *p.* 232; *Benth. in DC.* 12, *p.* 427. S. Drummondii, *Benth. l. c.* Mule Springs, May—August; *Thurber.* Wet places near the Flounce mountains, June; *Bigelow.* Lower Rio Grande; *Schott.* Valley of the Cocospera, Sonora, September; *Schott.* Presidio del Norte; *Parry.* Plant annual, but sometimes appearing to be suffrutescent, from the base becoming woody when old. Varies in pubescence, and with the leaves entire or crenate, as well as more or less broad. S. Drummondii passes by a gradual transition to S. resinosa.

SALAZARIA, Nov. Gen.

Calyx subglobosus, inappendiculatus, breviter bilabiatus, post anthesin valde auctus, vesiculoso-inflatus, reticulatus, labiis inæqualibus integris in ore parvo confluentibus. Corollæ tubus longe exsertus, recurvato-adscendens, superne in fauce dilatatus; limbo bilabiato, labio superiore concavo apice integro, inferiore patenti-convexo apice emarginato, lobis lateralibus brevibus cum labio superiore coalitis. Stamina vix exserta: antherae ciliatae, staminum inferiorum uniloculares, superiorum biloculares cordatae. Stylus apice subulatus, indivisus. Nuculæ depresso-globosæ tuberculosæ. Cotyledones radiculæ brevi incumbentes.—Frutex ramosissimus; foliis parvis petiolatis integris; racemis paucifloris terminalibus, floribus cæruleis.

S. MEXICANA. (TAB. XXXIX.) Ravines, Chihuahua, below Presidio del Norte, near the Rio Grande; *Parry.* This remarkable plant was first discovered by Col. Frémont, in 1844, on the Rio de los Angelos, a branch of the Rio Virgen, western New Mexico; but the specimens were too much injured for description. It is a shrub 2 or 3 feet high, with numerous slender spreading or reclinate branches, which are terete and hoary, with a minute appressed pubescence. The leaves are about half an inch long, petiolate, ovate or oblong-lanceolate, acute at the base, slightly pubescent, 3-nerved; petiole 2–3 lines long. Racemes 2–6-flowered, terminating the branches. Flowers on short pedicels, as large as those of Scutellaria galericulata, which they much resemble. Calyx, at first, with entire, very obtuse and equal lips, at length very much enlarged (nearly three-fourths of an inch in diameter) and bladder-like, with a contracted orifice. Corolla nearly an inch long; the upper lip concave and incurved; lower lip dilated, the sides somewhat reflexed, much shorter than the upper lip, to which they are

attached. Stamens scarcely exserted; the anthers approximated in pairs; the inferior (longer) pair with one of the cells abortive; lower pair with cordate, 2-celled anthers, the cells somewhat divaricate. Style long and filiform, not at all bifid at the summit. Nutlets depressed-globose, horizontal, nearly a line in the transverse diameter, roughened with minute tubercles. Seed conduplicate, or bent at an acute angle, so that the cotyledons are somewhat horizontal and incumbent on the radicle. One or more of the nutlets are commonly abortive.

Mr. Bentham (in the introduction to his Gen. & Spec. Labiat., p. xxix) says, that the embryo of all Labiatæ that he had examined is either straight or only slightly curved; the only exception being in Scutellaria, in which "it is curved backward in a peculiar manner." Salazaria exhibits the same peculiarity, that is, the cotyledons are incumbent. The rather short radicle is not applied close to the cotyledons, but makes an acute angle with them. This results from the flexure of the carpel itself, which commences at an early period, and at last the vertex approaches the base, as in Menispermum. The nutlets in Scutellaria are always more or less roughened with minute tubercles, or with thick scales which are imbricated retrorsely. In S. parvula there is a distinct horizontal wing, free from the tubercles, and surrounding the nutlet, thus making an approach to Periloma, in which they are narrowly 4-winged.

It is evident that Salazaria makes a near approach to Scutellaria, but its nearly regular and bladder-like inappendiculate fructiferous calyx, in which there is scarcely any distinction of upper and lower lip, distinguishes it sufficiently from that genus.

PHYSOSTEGIA VIRGINIANA, *Benth. Lab. p.* 504. Dracocephalum Virginianum, *Linn. Sp. p.* 828. Western Texas; *Wright.*

BRAZONIA TRUNCATA, *Engelm. & Gray, Pl. Lindh.* 1, *p.* 47; *Benth. l. c. p.* 434. Near Austin, Texas, May; *Wright.*

MARRUBIUM VULGARE, *L.; Benth. in DC. Prodr.* 12, *p.* 453. Santa Cruz, Sonora, May; *Capt. E. K. Smith.* Doubtless introduced by the Spaniards.

STACHYS COCCINEA, *Jacq.; Benth. in DC. Prodr.* 12, *p.* 467. Near the San Pedro river and in other parts of Sonora; also in Chihuahua; *Thurber.* Tubac, Sonora, March; *Parry.* Copper Mines, New Mexico, August; *Bigelow.* (No. 1527, *Wright.*) Our plant is smoother than the ordinary of the species. We have specimens of a Stachys, collected by Dr. Bigelow in rocky places near the Limpia mountains, which we think is a variety of S. coccinea, but the flowers are much smaller.

STACHYS AGRARIA, *Cham. & Schlecht. in Linnæa,* 5, *p.* 100; *Benth. l. c. p.* 479. S. umbrosa, *Scheele in Linnæa,* 22, *p.* 595. Near Santa Antonio, and in other parts of Texas; *Wright,* No. 1535.

STACHYS PALUSTRIS, *Linn.?; Benth. l. c.* Near San Diego, California, May; *Thurber.*

TRICHOSTEMA LANATUM, *Benth. Lab. p.* 659. (TAB. XL.) Solidad, above San Diego, California, June—July; *Parry;* also found near San Antonio, in the same State, by Dr. Andrews. Pubescence purplish and velvety. Stamens exserted two inches. Plant fragrant.

TRICHOSTEMA DICHOTOMUM, *Linn. Benth. l. c.* Western Texas. (No. 1541, *Wright.*)

TETRACLEA COULTERI, *Gray in Sill. Jour.* (2 *ser.*) 16, *p.* 97. (TAB. XLI.) Rocky hills on the Rio Grande, from Eagle Pass upward to El Paso; July—October. Sierra del Pajarito, June, *Schott,* and San Bernardino, Sonora, April; *Capt. E. K. Smith.* Mr. Bentham having in a recent letter communicated to me his opinion that Tetraclea is a true Labiate plant, and hardly distinct from Trichostema, Dr. Gray makes the following remarks: "Tetraclea Coulteri is most nearly allied to Trichostema, § Orthopodium, as Mr. Bentham suggests. But it differs in the

equally spreading (not declined) lobes of the corolla, and the equal stamens with parallel anther-cells. If the published character of *Trichostema*, and of the order were perfectly correct, it would also differ importantly in the amphitropous descending ovule. But in Trichostema, also, the ovules are amphitropous or between that and anatropous. The seed, however, is attached below the middle, whereas in Tetraclea it is attached above the middle; but this is merely a difference of degree. The anthers are not drawn quite right in the plate. They are scarcely emarginate at the upper, but deeply lobed at the lower end, and perfectly opposite or parallel."

Teucrium Canadense, *Linn. Benth. in DC. Prodr.* 12, *p.* 581. Santa Cruz Valley Sonora; *Schott, Thurber.* West of Cerralbo; *Gregg.* (No. 1542, *Wright.*)

Teucrium Cubense, *Linn.; Benth. l. c. p.* 578. T. laciniatum, *Torr. in Ann. Lyc. N. York*, 2, *p.* 231; *Benth. l. c.* Common in plains and low places throughout western Texas, N. Mexico, Sonora, etc., June—September. (No. 1544, *Wright.*)

BORAGINACEÆ.

Cordia podocephala (n. sp.): ramalis teretibus subcapitatis; foliis ovato-lanceolatis obtusiusculis basi angusto-cuneatis grosse serrato-dentatis utrinque ramulisque scabro-hirsutis; pedunculis axillaribus terminalibusque elongatis erectis; capitulis globosis; calyce ovato strigoso acute 5-dentato. Near San Antonio, Texas; October; also prairies and alluvions of the Rio Grande from the San Pedro to the Pecos; *Schott.* Plains and grassy places, Piedra Pinta, Texas; September—October; *Bigelow.* Near Monterey, Mexico; *Gregg, Dr. Edwards.* (Nos. 456 and 1510, *Wright.*)

Plant 1–2 feet high, nearly simple or moderately branched. Leaves 1–1½ inch long, and 3–5 lines wide; 4–6-toothed on each margin; scabrous on both sides, with short appressed hairs, which commonly arise from an elevated base. Peduncles solitary in the axils, 2–6 nches long. Heads (exclusive of the corolla) about one-third of an inch in diameter; the flowers closely aggregated. Corolla funnel-form, with a short tube, half an inch long and of equal diameter; white or pale rose color; the lobes short and slightly emarginate. Fructiferous calyx somewhat enlarged, the teeth triangular-ovate. Stamens included. Style long and filiform; the apex twice 2-cleft. Ovary 4-celled, the ovules ascending. Drupe about the size of a hempseed (Canabis); pulp very thin; endocarp reticulate-pitted. Cotyledons distinctly plicate longitudinally. Apparently allied to C. patens. An undescribed species of this genus was found by Gregg in the Balson de Mapimi. It may be thus characterized:

Cordia Greggii, (n. sp.): ramosissima, scabro-pubescens; foliis obovatis obtusis dentatis plicato-rugosis, basi longe cuneatis; cymis contractis subcapitatis paucifloris; laciniis calycis setaceis tubo campanulato brevioribus; corolla glabra infundibuliformi-campanulata. In the northern part of the Balson de Mapimi, flowering in April. A shrub 5–8 feet high. Leaves scarcely half an inch long, of a pale greenish gray color. Peduncles terminating the leafy branches, an inch long. Cymes 8–12-flowered, the flowers at first in a dense head, but afterwards unfolding a little. The upper part of the 5–6-toothed calyx clothed with short blackish hairs. Corolla more than an inch in diameter, white; the lobes obtuse and entire. Stamens 5–6, scarcely half the length of the corolla. Ovary tapering to a long slender style. Ovules ascending. This species connects the sections Dasycephalæ and Cordiopsis. It is allied to C. parvifolia, but has a much more contracted inflorescence.

Cordia Boissieri (*Alph. DC. Prodr.* 9, *p.* 478,): foliis ovatis utrinque obtusis vel apice acuti-

usculis; interdum serrulato-repandis supra scabriuscule pubescentis subtus velutino-tomentosis; pedunculis corymbosis rufo-tomentosis; calyce cylindraceo-ovato, dentibus subulato-acuminatis; corolla infundibuliformi calyce duplo-longiore glabriuscula. Near Monterey, Mexico; *Dr. Edwards, Gregg.* New Leon; *Thurber.* May. Cretaceous hills around Ringgold Barracks on the Rio Grande; *Schott.* (No. 304, *Berlandier.*) A shrub or small tree, sometimes attaining a height of 15 or 20 feet. Leaves 3–4 inches long, and 2–3 inches wide. Flowers in terminal corymbs. Corolla an inch and a half long, white, with a yellow centre. Stamens 5, shorter than the corolla; filaments slender; anthers oblong. Style twice bifid; the lobes obtuse, flattish. Fruit enclosed in the enlarged calyx, oblong, with a thin pulp. Endocarp thick and bony. Albumen none; cotyledons foliaceous, much plicate and veiny. The Mexicans call this plant Nacahuita. Dr. Gregg says that the fruit is eaten by cattle and hogs, and that a decoction of the leaves is used for pains in the limbs. It is closely allied to C. Sebestena, *Linn.* (C. speciosa, *Willd.*, which grows on Key West); but differs in the soft velvety undersurface of the leaves, the shorter calyx with more pointed teeth, etc.

Ehretia elliptica, *DC. Prodr.* 9, *p.* 503. Texas; *Wright.* Near Corpus Christi; *Major Eaton.* Near Monterey, Mexico to Camargo; *Gregg.* Santa Rosa, Chihuahua; *Bigelow.* Between Ringgold Barracks and the mouth of the Rio Grande; *Schott.* September. (Nos. 233, 236 and 900, *Berlandier.*) A tree 20–30 feet high, and often nearly a foot in diameter, with gnarled branches. Flowers sometimes tetramerous. Fruit the size of a large pea, yellow, with a thin edible pulp.

Ptilocalyx Greggii, *Torr. & Gray, Bot. Pope's Rep. p.* 14, *t.* 8. Rocky places on the Rio Grande, from El Paso to the Presidio. (Nos. 492 and 1583, *Wright.*) A shrub 1–3 feet high, with small oval leaves; remarkable for the spherical clusters of flowers and plumose calyx-segments.

Stegnocarpus canescens, *Torr. & Gray, l. c., p* 13, *t.* 7. Coldenia? (Stegnocarpus) canescens, *DC. Prodr.* 9, *p.* 559. Dry hills near El Paso, etc., March—May. (Nos. 836, 959, 2256, 2389, *Berlandier.*)

Tiquilia brevifolia (*Nutt. herb.*): annua; foliis ovatis, 3–4 veinis; staminibus inclusis. *Torr. in Bot. U. S. Expl. Exped. ined. t.* 12. Desert west of the Colorado, California, March; *Schott.* This plant was found by Major Emory in 1846, in the same desert; but his specimens were collected in the winter, and were too imperfect for determination. T. dichotoma, *Pers.*, (Coldenia? dichotoma *DC.*,) differs in being suffrutescent and in having lanceolate leaves. Late in the season the leaves become rigid and hispid. The remarkable character of the lobed cotyledons in this genus was pointed out to my friend Dr. Gray many years ago. It is fully described in the Botany of the United States Exploring Expedition. Mr. Bentham has noticed it in *Hook. Jour. Bot. & Kew Miscell.* 3, *p.* 296.

Var. plicata: foliis oblongis utrinque 5–7-veniis plicato-rugosis. With the preceding. Leaves remarkably plicate between the veins. Late in the season the stem of this becomes hard and ligneous, so that, without examining the root, the plant might be considered as frutescent.

Eddya hispidissima, *Torr. & Gray, Bot. Pope's Rep. p.* 170, *t.* 9. Gravelly hills near El Paso, New Mexico; March—May. (Nos. 485 and 1557, *Wright.*)

Heliotropium Curassavicum, *Linn.; DC. Prodr.* 9, *p.* 538. Sandy places, especially on the

banks of rivers throughout western Texas and New Mexico, and west of the Pacific; flowering from April to September. Dr. Parry found it in abundance on the beach near San Diego.

Heliotropium inundatum, *Swartz Fl. Ind. Oc.* 1, *p.* 343; *Gray & Engelm. Plant. Lindheim. p.* 18. Sandy plains, Eagle Pass, September; *Bigelow.* Near the Pecos; *Schott.* Dr. Edwards and Major Eaton found the plant near Monterey, Mexico, and Dr. Gregg at Matamoras. Alexandria, Louisiana; *Dr. Hale.* (Nos. 700, 917 and 2117, *Berlandier.* No. 1550, *Wright.*) All our specimens are evidently annual; but De Candolle has described it as fruticulose. The root does, indeed, as in many other annuals of this dry country, become quite woody late in the season. The nutlets are ovate and villous, and their face marked with 2 small ovate protuberances, but with no foveolæ.

Heliotropium phyllostachyum (n. sp.): annuum, diffuse ramosum, strigoso-hirsutum; foliis lanceolatis basi in petiolum brevem attenuatis; spicis solitariis interrupte foliaceis; floribus sessilibus; lobis calycis lanceolatis inequalibus; corollæ tubo longitudine calycis extus piloso; antheris superne attenuatis apice puberulis; nuculis subglobosis extus strigulosis intus bifoveolatis. Western Texas, No. 1551, *Wright.* We have the same plant, collected near Monterey, Mexico, by Dr. Edwards and Major Eaton, and from Key West sent by the late Mr. Blodgett. It is also No. 1538 and 3038 of Berlandier, who collected it at San Fernando, Cohahuila. Plant more or less branched and diffuse; the branches 3–5 inches long, of a grayish aspect. Leaves 6–8 lines long and 2–2½ lines wide, scabrously hirsute; the hairs arising from a little callous tubercle. Spikes many-flowered; many of the flowers ebracteate, others furnished with a large foliaceous bract which resembles the proper leaves. Flowers small: corolla apparently white, the lobes lanceolate and erect. Stamens inserted at the lower part of the corolla-tube; anthers somewhat hastate. Style very short; stigma conical from a broad base. Nutlets about half a line in diameter, with two deep pits on the face. It belongs to the section *Orthostachys.*

Heliotropium Greggii (n. sp.): suffruticosum, e basi ramosum, prostratum; foliis lanceolato-linearibus obtusiusculis pilis brevibus adpressis hirsutis; spicis paucifloris parce foliaceis bracteatis, floribus sessilibus; corolla calyce duplo longiore, limbo plicato, laciniis brevissimis; antheris apice barbulatis; stigmate superne attenuato; nuculis subglobosis hispidis facie bifoveolatis. Sandy places near El Paso, April; *Bigelow.* Near Chihuahua, August; *Thurber.* (No. 487 and 1548, *Wright.*) Valley of Conchos, near Santa Rosalia, May; *Gregg.* Boca Grande, Caracalio, March—April; *Capt. E. K. Smith.* Stems prostrate, 3–8 inches long. Leaves 6–10 lines long, rarely 2 lines wide. Spikes at first distinctly circinate, mostly few-flowered, but sometimes 15–20-flowered, irregularly foliaceous. Flowers on short pedicels, white, odorous. Corolla 3–4 lines in diameter, the limb spreading and strongly plicate; lobes short with intermediate shorter ones in the sinuses. Stamens inserted about the middle of the tube of the corolla; anthers oblong, acute, at first coherent by their villous tips, but at length distinct. Style very short; stigma with a broad truncated base and tapering upward. Carpels hispid with short erect hairs; the face contracted and marked with 2 minute foveoles. Mr. Thurber informs me that the flowers are very fragrant.

Heliotropium angustifolium (n. sp.): suffruticosum, ramosissimum, erectum, adpresso-hirsutum, incanum; foliis linearibus vel lanceolato-linearibus acutis basi angustatis; spicis dichotomis vel solitariis ebracteatis; floribus brevissime pedicellatis post anthesin patulis vel nutantibus; corollæ tubo calycem subæquante; stigmate e basi subgloboso elongato; nuculis subglobosis hispidis intus bifoveolatis. Western Texas and along the Rio Grande, south to Eagle Pass,

March—October. Near Monterey, Mexico; *Dr. Edwards and Major Eaton.* (No. 480 and 1546, *Wright.*) Plant about a foot high; often several stems from one root; branches terete, slender, erect. Leaves 6–10 lines long, half a line to a line in breadth, often crowded. Spikes at first short, but in fruit 2 or 3 inches long, slightly circinate when young. Calyx a little shorter than the tube of the corolla; the lobes lanceolate, equal, erect. Corolla apparently white, about 2 lines long; lobes lanceolate, acute, spreading, or somewhat erect. Stamens inserted in the middle of the tube of the corolla; anthers oblong, smooth at the tip. Stigma elongated and narrow, from a somewhat dilated base; style as long as the ovary. Nutlets often alternately smaller, with a narrow face, which is marked with 2 distinct pits.

Heliotropium limbatum, *Benth. Pl. Hartw. p.* 20, *No.* 154; *DC. Prodr.* 9, *p.* 543. Murin, Mexico; *Thurber.* San Carlos, Mexico; *Berlandier*, No. 3199. Monterey, Mexico; *Dr. Edwards and Major Eaton.* A small prostrate much branched species. Stem suffruticose. Leaves about 3 lines long, cinerous, hispid, patulous. Spikes very short, few-flowered, mixed with leaves at the extremity of the branches. Limb of the corolla much dilated and undulate, angularly 5-lobed. Anthers a little coherent and bearded at the tip. Style 3 times as long as the ovary. Stigma conical from a dilated subglobose base; bifid at the apex. This species seems to be nearly allied to H. humifusum, *H. B. K.*

Heliotropium limbatum, var. confertifolium: caulibus robustioribus, ramulis suberectis; foliis lanceolato-linearibus confertissimis subappressis. Plains near Leon Springs, September; *Bigelow.* San Vincente; *Parry.* Cerralvo, *Gregg.* (No. 481 and 1547, *Wright.*) This is a much stouter and larger plant than Bentham's, and differs strikingly in its narrower, somewhat appressed and crowded leaves. Flowers pale purple (*Gregg*).

Heliotropium tenellum, *Torr. in Marcy Report, t.* 14. Lithospermum tenellum, *Nutt. Fl. Arkans. in Trans. Amer. Phil. Soc. n. ser.* 5, *p.* 189. L. angustifolium, *Torr. in Ann. Lyc. N. York*, 2, *p.* 225, *non Michx.* (where the nutlets are incorrectly described as smooth and polished.) High plains near Howard's Springs, and Rio San Pedro, western Texas, October; *Schott.* (No. 1559, *Wright.*) Western Texas; *Marcy.* Prairies near San Augustin, Texas; *Leavenworth.* On the Red river, Louisiana; *Dr. Hale.* Tennessee; *Mr. Curry.* Plant about a foot high, often much branched. Leaves an inch long and 1–1½ line wide. Racemes few-flowered, naked or somewhat leafy; the flowers distant, conpicuously pedicellate. Calyx very unequally 5-parted; the segments lanceolate-linear, in fruit much longer than the nutlets. Corolla white, 2½ lines long; the lobes obovate-oblong and rather obtuse. Anthers oblong, slightly bearded at the tip. Stigma nearly sessile, oblong, tapering upwards, bifid at the summit. Nutlets subglobose, the upper part appressed-pubescent, below the middle (and often also above) reticulated, not verrucose as represented in the figure quoted above, without foveoles on the face.

Heliophytum parviflorum, *DC. Prodr.* 9, *p.* 553. Heliotropium parviflorum, *Linn.* Plains near Eagle Pass, September, (fruit); *Bigelow.* Lower Rio Grande, in various places, April—May; *Schott.* Monterey, Mexico; *Dr Edwards, Gregg.* We have specimens also from Key West, Florida, collected by Blodgett.

Heliophytum (Cœloma) molle (n. sp.): suffruticosum, griseo-velutinum; foliis deltoideo-ovatis basi in petiolum abrupte angustatis margine undulatis; pedunculis terminalibus bifidis spicis conjugatis nudis scorpoideis; floribus sessilibus; calycis lobis lanceolatis corollæ tubo paullo brevioribus; corollæ lobis obtusis crenulato-undulatis: fructu subgloboso velutino apice integro,

loculis in utroque segmento lateralibus lacuna magna centrale interposita. Plains near Presidio del Norte, August, fl. and fr.; *Bigelow*. Plant about a foot high, the stem a little woody at the base. Leaves alternate, 2 inches long, and an inch or more wide, clothed (like the stem) with a soft velvety pubescence, the veins underneath very distinct. Spikes $1\frac{1}{2}$–2 inches long, and not much elongated in fruit, at first strongly circinate, the flowers closely approximated. Corolla about $2\frac{1}{2}$ lines long, white, infundibuliform. Anthers oblong. Stigma subsessile, conical from a broad base, pubescent. Fruit about 2 lines in diameter, segments 2-seeded, with a large central lacune interposed, besides 1–2 smaller lateral ones.

Heliophytum (Cœloma) glabriusculum (n. sp.): caule herbaceo erecto e basi ramoso adpresse pubescente; foliis alternis lanceolatis, obtusiusculis basi in petiolum attenuatis utrinque viridis glabriusculis; spicis solitariis geminatis vel ternatis, junioribus scorpoideis; floribus brevissime pedicellatis approximatis ebracteatis; calycis lobis lineari-lanceolatis; corollæ lobis oblongis obtusis; fructu compresso subdidymo puberulo apice integro ad suturas late excavato, segmentis dispermis, lacuna centrali interposita præterea lacunarum 2 minorum lateralium. Sandy plains, Eagle Pass, September; *Bigelow*. (No. 1549, *Wright*.) About a span high; the lower branches spreading and perhaps prostrate. Leaves an inch long and 2–3 lines wide, a little hairy on the midrib underneath, the rest nearly smooth; the margin somewhat undulate. Peduncles terminal, bearing from one to three spikes, which are about an inch in length. Corolla white, the border dilated, deeply 5-lobed; the lobes slightly undulate. Stamens inserted about the middle of the tube; anthers sessile, fixed near the middle of the back, lanceolate, acute. Stigma about as long as the subglobose ovary, nearly sessile, conical from a broad annular base. Fruit didymous, the apex truncate, concave and 4–6-denticulate; the segments sometimes only 1-seeded by abortion, with 3 empty cells, the central one (near the commissure) larger, the others lateral and much smaller.

Euploca convolvulacea, *Nutt. in Trans. Amer. Phil. Soc. n. ser.* 5, *p.* 189; *Hook. Ic. t.* 651; *Torr. in Marcy's Rep. p.* 294, *t.* 15. Valley of the Rio Grande, from Presidio del Norte upwards, July—October. Chihuahua; *Thurber*. (*Wright*, No. 1553.) In the centre of each division of the fruit there is a small empty cell or lacuna, which is seen only when a cross section is made midway between the base and the apex. This genus is intermediate between Tournefortia § Arguzia, and Heliophytum.

Macromeria viridiflora, *DC. Prodr.* 10, *p.* 68? Copper Mines, New Mexico, June—August; *Bigelow*, *Thurber*. (No. 1558, *Wright*.) Plant two or three feet high; erect. Stem hispid with spreading hairs. Leaves ovate, lanceolate, 2–$3\frac{1}{2}$ inches long, and 6–12 lines wide, the upper surface hispid with hairs which arise from an elevated callous base; the under side either hispid or somewhat softly villous with closely appressed hairs. Flowers nearly an inch and a half long, tubular-funnelform, greenish and very hairy externally; yellow inside. Calyx about one-fourth the length of the corolla; the divisions much elongated in fruit. Stamens at first included, but at length exserted. Nutlets ovate, more than a line long, smooth, and shining. Our plant agrees sufficiently well also with the description of M. viridiflora.

Onosmodium Carolinianum, *DC. Prodr.* 10, *p.* 70. San Antonio, Texas; *Thurber*. We have intermediate forms which seem to connect O. Virginiana and O. molle with this species.

Lithospermum canescens, *Lehm. Asp.* 2, *p.* 305; *DC. Prodr.* 10, *p.* 78. Copper Mines, New Mexico, and Mountain Arroyos, near Camp Bache, June—July—August; *Bigelow*, *Thurber*.

Sierra San Luis, Chihuahua, September; *Schott.* No. 1653, *Wright*, seems to be only a narrow-leaved form of this species.

LITHOSPERMUM LONGIFLORUM, *Spreng. Syst.* 1, *p.* 554. L. incisum, *Lehm. l. c.* Pentalophus longiflorus, *DC. Prodr.* 10, *p.* 86. Banks of streams, cañon of Guadalupe, Sonora, April; *Captain E. K. Smith.* Near the Copper Mines, Ben Moore, Santa Barbara, and Mimbres, April; *Bigelow.* Apache Springs, March; *Parry.* Hueco mountains, Texas, and Ojo de Vaca, Chihuahua; *Thurber.* Nutlets ovate, white and shining, marked more or less with shallow pits. After flowering the plant becomes more branched, and produces narrower and more crowded leaves.

LITHOSPERMUM BREVIFLORUM, *Englm. & Gray, Pl. Lindh. p.* 44. Western Texas; (*Wright*, Nos. 1560 and 1561.) Nutlets as in the last.

LITHOSPERMUM MATAMORENSE, *DC. Prodr.* 10, *p.* 76. On the Lower Rio Grande; (*Wright*, No. 1564.) Near Monterey, Mexico; *Dr. Edwards and Major Eaton.* Our plant agrees very well with Berlandier's own specimens.

AMSINCKIA LYCOPSOIDES, *Lehm. Del. Sem. H. Hamb.* 1831, *p.* 7; *DC. Prodr.* 10, *p.* 117. Journado between Tucson and the Gila, Sonora; also grassy places near San Diego, California, March; *Parry.*

AMSINCKIA INTERMEDIA, *Fisch. & Mey. Ind.* 2, *Sem. Petrop.* 1835, *p.* 26; *DC. l. c.* Alluvions of the Gila, Sonora, and near San Diego, California, March; *Parry.* The insertion of the stamens is not constant in this genus. In the same species they are sometimes placed near the base of the corolla; sometimes in the upper part of the throat. Perhaps all the species with rugose nutlets are forms of A. lycopsoides.

ERITRICHIUM GLOMERATUM, *DC. Prodr.* 10, *p.* 131. Myosotis glomerata, *Nutt. Gen.* 1, *p.* 112, *Hook. Fl. Bor.-Amer.* 2, *p.* 82, *t.* 162. Near El Paso and Doña Ana, March—April. (No. 1566, *Wright.*) New Mexico; *Fendler* No. 632. About a foot high. Root perennial. Hairs of the calyx and of the upper leaves yellowish. Nutlets closely fitted to each other, forming a depressed globose fruit, margined; the back strongly rugulose transversely and more or less verrucose.

Var. HISPIDISSIMUM is more hispid, and seems to be biennial. Common in New Mexico.

ERITRICHIUM JAMESII, *Torr. in Marcy Rep. p.* 294. Myosotis suffruticosa, *Torr. in Ann. Lyc. New York*, 2, *p.* 225. Near the Copper Mines, New Mexico, and Mule Springs, March—June, El Paso, and Journado del Muerto, March—April; *Thurber.* Dry ravines, San Luis, Sonora, April; *Captain E. K. Smith.*

ERITRICHIUM HELIOTROPIOIDES. Antiphytum heliotropioide , *Alph. DC. in Prodr.* 10, *p.* 122. Sandy shore of the Rio Grande at Eagle Pass; *Schott.* No. 1512, *Wright.* Valley of the Limpio; *Bigelow.* Dry plains southwest of Escondido, May, (1847,) and Saltillo, (1848 and 1849;) *Dr. Gregg.* Our specimens agree in all respects with Berlandier's. The leaves are not opposite, and we have little doubt that the plant should be referred to Eritrichium, § Rutidocaryum. The root is annual, but in old plants the stem becomes hard and ligneous.

ERITRICHIUM (RUTIDOCARYUM) FLORIBUNDUM (n. sp.): caulibus erectis basi simplicibus superne paniculatim ramosissimis foliisque adpresse cinereo-pubescentibus; foliis lanceolatis seu linearibus acutiusculis; racemis brevibus paniculatis paucifloris parcebracteatis; corolla campanulata, lobis rotundatis; nuculis late-ovatis acutiusculis densissime verruculosis. Mountains of Puerte de Paysano, September, fl. and fr.; *Bigelow.* Also in low places near Rock Creek. Root apparently perennial. Stem 2–3 feet high. Leaves 1–1½ inch long; the radical ones 3–4 lines wide, lanceolate or lanceolate-spatulate; the cauline 1–2 lines wide. Racemes lateral

and terminal, forming a long, somewhat contracted panicle, 3–8-flowered, at first circinate; flowers approximated, on short pedicels. Segments of the calyx linear, somewhat hispidly pilose. Corolla white, about one-third longer than the calyx; the tube very short; borde much dilated. Stamens scarcely exserted. Nutlets nearly a line long, the face acutely arinate, and a small prominence near the base, where it is attached to the style; the back strongly convex.

ERITRICHIUM PUSILLUM, *Torr. & Gray, in Bot. Pope Rep. p.* 15. Dry hills and rocky places near El Paso, March; *Bigelow, Wright.* Santa Maria, Chihuahua, March; *Parry.*

ERITRICHIUM CRASSISEPALUM, *Torr. & Gray, l. c.* Dry soils in various places along the Rio Grande, from Eagle Pass upward to El Paso, westward to Gaudalupe Pass, Sonora, March—April.

ERITRICHIUM MICRANTHUM (n. sp): annuum, pusillum, canescenti-hispidum; caule e basi ramosissimo; foliis linearibus obtusis; racemis brevibus longe bracteatis; floribus confertis, corolla minutissima, fauce nudo; nuculis oblongis acutiusculis glaberrimis dorso convexis angulo interno prominente sulcato. Sand hills, Frontera, Texas, and in other places along the Rio Grande, March—April; *Thurber.* (*Wright*, No. 1565.) Stem 2–4 inches high, much branched from the base, and apparently diffuse when old; the branches very slender. Leaves 3–4 lines long, and scarcely more than half a line wide. Racemes at first capitate and crowded with short leafy bracts, unfolding gradually, but never more than half an inch long, the flowers so close together as to be imbricated, with foliaceous bracts at the base longer than the calyx. Segments of the calyx linear. Corolla less than a line in length, separating early from the base, but remaining on the flower like a calyptra, the tube narrow, and about as long as the calyx; no traces of appendages; the lobes small and ovate. Stamens inserted about the middle of the corolla-tube, nearly sessile. Nutlets about one-third of a line long, narrowly oblong, shining, apparently adhering to the column (which is very broad at the base,) by the whole length of the sulcate inner angle. This species is allied to Krynitzkia, and also to the section Cryptantha of Eritrichium, differing from the first in the persistent calyx, and in wanting the appendages of the corolla, from the latter in the homomorphous flowers and smooth nutlets.

ERITRICHIUM ANGUSTIFOLIUM, *Torr. in Pacific Railroad Reports*, 5, *p.* 363. On the Rio Gila; *Thurber.* Cañon of Guadalupe Mountain, Sonora; *Capt. E. K. Smith.* The segments of the calyx are much elongated after flowering, when they become almost subulate. One of the nutlets is sometimes larger and smoother than the others. Differs from E. crassisepalum in the longer, denser, and naked racemes; in the nutlets being wholly or nearly homomorphous, oblong, and only very minutely scabrous.

ERITRICHIUM CHORISIANUM, *DC. Prodr.* 10, *p.* 130? Grassy hills near San Luis Rey, and on mountains east of San Diego, California, March—June; *Parry.* The plant from the former station is much larger, with radical leaves 3 inches long and 3–4 lines wide. Specimens laid in the herbarium give out, after some time, a purplish material, which leaves the imprint of the plant on the paper. The coloring matter is of a resinous or terebinthine nature and is quite soluble in alcohol, so that it is not a kind of indigo. It is contained in cells which are situated along the margin and on each side of the midrib. In the dried plant the color is of a bright red. We have a strong suspicion that E. Californicum, E. Chorisianum, and E. Scouleri are not distinct.

PECTOCARYA CHILENSIS, *DC. Prodr.* 10, *p.* 120. California, (the station not recorded, but probably near San Diego;) *Parry.*

KRYNITZKIA LEIOCARPA, *Fisch. & Mey. Ind.* 7, *Sem. H. Petrop.* 1841, *p.* 52. Grassy hills near San Luis Rey, February ; *Parry.* Also found in California by the *Rev. A. Fitch.*

ECHINOSPERMUM DEFLEXUM, *Lehm. Asp. No* 93 : Var. lobis calycinis oblongo-linearibus. Hills near the Copper Mines, New Mexico, August, fl. & fr.; *Bigelow.* This differs from my European specimens of this species in the narrower lobes of the calyx; but they are nearly as broad as those of E. secundum, *Kar. & Kir.*, which Alph. DC. refers to E. deflexum. In specimens of the latter from Altai, (collected as I think by Bunge,) the nutlets are somewhat heteromorphous, two opposite ones having rather a broad margin, which is pectinate with flat glochidiate prickles ; the other two are smaller, with a much narrower margin and shorter prickles. Our plant has a biennial root. The stem more than 2 feet high. Lower leaves 2 inches long and 5–7 lines wide, villous with spreading hairs. Racemes numerous, forming a loose terminal panicle, bracteate to the summit. Pedicels closely deflexed. Corolla salver-form, 2 lines long, with a short tube and obtusely 5-lobed border ; the throat furnished with 5 very prominent tubercles. Nutlets homomorphous ; the aculei marginal only, in a single series, confluent at the base.

ECHINOSPERMUM PATULUM, *Lehm. Asp. No.* 95. Gravelly and sandy soils. Valley of the Rio Grande, from El Paso to Eagle Pass, and west to the Gila. Usually about a foot high, and much resembling E. Lappula.

ECHINOSPERMUM STRICTUM, *Nees. in Maximill. Trav. App.; Torr. & Gray in Bot. Pope Rep. p.* 15. E. Texanum, *Scheele in Linnœa* 25, *p.* 260. Cynoglossum pilosum, *Nutt. Gen.* 1, *p.* 114 ? Near San Antonio, Texas ; *Thurber.* Western Texas ; *Wright,* No. 1573. Nutlets with an inflexed border and a deeply depressed disk ; almost as in Omphalodes. Flowers pale blue.

ERITRICHIUM PTEROCARYUM, (n. sp.,) *Torr. in Bot. U. S. Expl. Exped. t.* 13, *ined.* Hills and rocky places near El Paso, etc.; *Bigelow.* (*Wright,* No. 1570.) This species was first detected in Oregon by Dr. Pickering while connected with the United States Exploring Expedition. It is about a foot high and remarkable for its conspicuously winged fruit, the wings being as broad as the body and more or less toothed above the middle. In the Oregon specimens, and in some of those from New Mexico, one of the nutlets is apterous.

CYNOGLOSSUM GRANDE, *Dougl.; Hook. Fl. Bor.-Amer.* 2, *p.* 85. Napa valley, California, March ; *Thurber.* Also found by *Mr. Fitch* in the same State.

HYDROPHYLLACEÆ.

NEMOPHILA PEDUNCULATA, *Benth. in Linn. Trans.* 17, *p.* 275? Napa valley, California ; *Thurber.* This is the same as No. 480 of Coulter's Californian Collection. It is named N. parviflora by Dr. Harvey, (MSS.,) but differs from that species in the seeds being more numerous (10–13) and tuberculate, not 4, and impressed-punctate. The arillus is calyptriform in both species. The leaves, too, are usually 7–9-lobed in N. pedunculata, and only 5-lobed in N. parviflora. Alph. De Candolle (in Prodr.,) remarks that he found the placentæ 2-ovulate in both species, and Fischer & Meyer (l. c.) think they are not distinct. They may have examined a different plant from the one here noticed, probably a mere variety of N. parviflora.

NEMOPHILA AURITA, *Lindl. Bot. Reg. t.* 1601 ; *Alph. DC. Prodr.* 9, *p.* 290. San Diego, California; *Parry.* San Pasqual, in the same State, May ; *Thurber.*

NEMOPHILA LINIFLORA, *Fisch. & Mey. Sert. Petrop. t.* 5. Dana's Ranch, and grassy plains below Los Angelos, March ; *Parry.* Napa Valley, May; *Thurber.*

ELLISIA MEMBRANACEA, *Benth. in Trans. Linn. Soc.* 17, *p.* 274; *Alph. DC. l. c. p.* 292. Moist shady places, San Diego, California; *Parry.* Coulter's No. 470 is the same.

ELLISIA CHRYSANTHEMIFOLIA, *Benth. l. c.; Alph. DC. l. c.* Santa Barbara, California, and near Tucson, Sonora; *Parry.* Our specimens agree with Douglas' original ones, except that the flowers are more developed in the former than in the latter. The corolla is nearly twice as long as the calyx.

PHACELIA CIRCINATA, *Jacq. fil. Ecl.* 1, *p.* 135, *t.* 91, *& Alph. DC. Prodr.* 9, *p.* 298. Dry hills near Santa Barbara and Monterey, California, April—May; *Parry.*

PHACELIA INTEGRIFOLIA, *Torr. in Ann. Lyc. New York*, 2, *p.* 222, *t.* 3. Near El Paso, etc., March—April, and Chihuahua, August; *Thurber.* (No. 1581, *Wright.*) The specimens from these stations resemble the original plant; but others, from the Mimbres and Sonora, have the leaves more or less deeply pinnatifid and the segments often toothed, (as in No. 1579, *Wright.*) so that the specific name is not appropriate. The capsule is globose. The four seeds are oval, rough, with minute warts on the back, and the face is strongly corrugated transversely, as well as marked with a longitudinal ridge.

PHACELIA CONGESTA, *Hook. Bot. Mag. t.* 3452; *Alph. DC. l. c.* Rocky hills near Camp Bache, and near the Copper Mines, July—August; *Bigelow.* Near San Antonio, Texas, April—May; *Thurber.* Nos. 1574, and 1576, *Wright;* also, ? 1755, a dwarf form.

PHACELIA TANACETIFOLIA, *Benth. l. c.; Alph. DC. l. c.* Hills near Monterey, California, May; *Parry.* San Diego, May; *Thurber.* Var. TENUIFOLIA. P. tenuifolia, *Harv. MSS. Pl. Coult.* San Diego and other places in California, March; *Parry, Thurber.* This is surely only a slender leaved var. of P. tanacetifolia. Var. LATIFOLIA: foliis segmentis ovato-oblongis grosse dentatis. Mountains east of San Diego, June; *Parry.*

PHACELIA NEOMEXICANA (*Thurb. MSS.*): erecta, pilis patentibus pubescentia viscosa intermixtis; foliis pinnatisectis, segmentis valde inequalibus, utrinque 4–6 cum impari oblongis inciso-dentatis, lobis ovatis subdentatis acutiusculis; racemis spiciformibus densifloris corymbosis; floribus subsessilibus; lobis calycis oblongis; corolla calyce subduplolongiore campanulata, margine eroso-dentata; staminibus vix exsertis. Pine woods near the Copper Mines, New Mexico, August; *Thurber.* (No. 1577, *Wright.*) Stem 1–2 feet high, hispidly pilose and viscidly pubescent. Leaves 3–4 inches long, thin, the segments rather distant, about an inch long. Calyx not enlarged in fruit. Corolla about 3 lines in diameter, the appendages near the base with their free margins reflexed. Filaments smooth. Style hairy below. Capsule globose-ovate.

PHACELIA (EUTOCA) LOASÆFOLIA. EUTOCA LOASÆFOLIA, *Benth. l. c.* Monterey, California, May; *Parry.* Also found by Rev. Mr. Fitch, but the station not recorded. We strongly suspect this to be only P. malvæflora, *Cham. & Schlecht. in Linnæa*, 4, *p.* 494. The only discrepancy is the number of seeds said to occur in that species; but there may have been more ovules, only part of which ripened.

PHACELIA (EUTOCA) VISCIDA. Eutoca viscida, *Benth. in Bot. Reg. t.* 1808. Cosmanthus viscidus, *Alph. DC. Prodr.* 9, *p.* 296. Bushy places near Santa Barbara, California, March. "Flowers yellowish," *Parry.* Eutoca albiflora, *Nutt. Pl. Gamb.*, seems to be scarcely distinct from this species. Mr. Nuttall described from dried specimens, and was not sure that the flowers were white.

PHACELIA (EUTOCA) DOUGLASII. Eutoca Douglasii, *Benth. l. c.* Sand hills, Dana's Ranch, California, March; *Parry.* Sepals linear-spatulate. Stamens included, "dilated at the base,

where they are united to the appendages of the corolla;" *Thurber, MSS.* The corolla is pale purple, not "lutescens?" as Alph. DC. supposed it to be.

PHACELIA (EUTOCA) PARRYI (n. sp.): parce hispida, pilis longis patentibus pubescentia viscosa intermixtis; foliis ovatis grosse inequaliter serratis; racemis plurifloris foliis multo longioribus; pedicellis calyce fructifero 2–3-plo longioribus; lobis calycis anguste-linearibus corolla ampla campanulata duplo brevioribus; filamentis basi squamæ corollæ adnatis; placentis 20–25-ovulatis. Mountains east of San Diego, California, June; *Parry.* Stem 1–2 feet high, apparently erect. Leaves 1–1½ inch long, tapering at the base to a petiole which is 6 or 8 lines long. Racemes at first circinate, when in fruit nearly a foot long. Pedicels about an inch in length, spreading horizontally. Segments of the calyx a little dilated upward. Corolla two-thirds of an inch in diameter, purplish, the lobes rounded and entire. Stamens scarcely exserted; the filaments with a small truncate or bidentate adnate scale at the base. Capsule ovate, rather acute, containing about 40 oblong and scabrous seeds. As remarked in the Botany of Parkes' P. R. R. Report, this species seems almost intermediate between Phacelia (Eutoca) and Whitlavia. It has the corolla of the former, with the long pedicels and corolline scales of the latter.

PHACELIA (EUTOCA) INFUNDIBULIFORMIS (n. sp.): annua, erecta, hispida, pilis rigidis patentibus pubescentia nigra viscosa intermixtis; foliis pinnatifidis, segmentis 7–9 inciso-lobatis, lobis obtusis integris vel dentatis; racemis scorpioideis plerumque bifidis multifloris, floribus congestis brevipedicellatis; lobis calycinis spathulatis; corolla semiquinquefida, lobis integris, tubo infundibuliformi; placentis 10–12-ovulatis. Overhanging rock on a mountain near Lake Santa Maria, Chihuahua, April; *Bigelow, Wright.* Plant 6–8 inches high, somewhat branching from the base. Leaves 1–2 inches long in Bigelow's specimens, somewhat longer in Wright's. Spikes 30–40-flowered, when in fruit 2½–4 inches long; the flowers very closely approximated, on pedicels a line or more in length. Calyx hispid and glandularly pubescent, the segments unequal, about two-thirds the length of the corolla, linear-spatulate, obtuse. Corolla pale purple, 2½ lines long, the tube narrower and funnel-form; lobes rounded. Stamens included, with a pair of oblique folds near the base of each filament. Style 2-cleft about half its length, hairy at the base. Fructiferous calyx nearly the length of the obtuse capsule. Seeds about 20, oval, compressed, scabrous, with an elevated ridge on the face. This species is remarkable for its funnel-form corolla, in which character it resembles the section Conanthus of Eutoca (*Alph. DC. Prodr.*); but the habit of the plant is different from that of E. aretioides. Wright's specimens have a laxer habit, as well as larger and more membranaceous leaves than Bigelow's, probably from having grown in a shady place.

PHACELIA (EUTOCA) DOUGLASII. Eutoca Douglasii, *Benth. l. c.; Alph. DC. l. c.* Sand hills, Danas' Ranch, California, March; *Parry.*

PHACELIA MICRANTHA (n. sp.): annua, erecta, gracilis, parce glanduloso-pubescens; foliis pinnatifidis, segmentis 5–9 obovatis obtusis integris vel 1–2-dentatis; petiolis marginatis basi auriculatis; racemis simplicibus vel bifidis paucifloris; calyce pedicello subæquali, segmentis obovato-oblongis obtusissimis, corolla late campanulata calyce vix longiore campanulata; placentis 8–12-ovulatis; seminibus oblongo-cylindricis incurvis transverse valde rugosis. Stony hills, near El Paso, March; *Bigelow.* Santa Cruz, near Tubac, Sonora; *Parry.* (No. 1582, *Wright.*) Plant 4–8 inches high, moderately branching. Leaves about an inch in length contracted below to a narrowly winged petiole and then dilated and auriculate at the base. Flowers distant, 1½ line in diameter, the pedicels slender and a little spreading. Calyx somewhat enlarged in fruit. Corolla pale purple; the 10 appendages minute, transversely lunate.

Seeds often 20–24, with deep transverse rugæ so as to appear articulated. A very distinct species, which was found by Dr. Bigelow, in Whipple's Expedition, as far west as the Colorado of California, but was omitted in the Botanical Report.

PHACELIA CILIATA, *Benth. l. c.* Grassy hills, San Luis Rey, California, February; *Parry.* San Diego; *Thurber*, (a large state of the plant.) Hill sides, Sonora, March; *Capt. E. K. Smith.* Ojo de Vaca, Chihuahua; *Thurber.*

EMMENANTHE PENDULIFLORA, *Benth. l. c.; Alph. DC. l. c.* San Pasqual, California, May; *Thurber.* We have also specimens of this rare plant collected by Dr. Andrews, near Monterey.

POLEMONIACEÆ.

PHLOX DRUMMONDII, *Hook. Bot. Mag. t.* 3441; *Benth. in DC. Prodr.* 9, *p.* 305. Sandy places, central and western Texas, June to September.

PHLOX SPECIOSA, *Pursh, Fl.* 1, *p.* 149; *Benth. l. c. p.* 307. P. longifolia, *Torr. in Stansbury Rep.* Gravelly hills, on the upper Rio Grande.

Var.? STANSBURYI: suffruticosa; caule superne pedicellis calycibusque glandulosa-pubescentibus; corollæ lobis oblongo-cuneatis obtusis vel emarginatis. Gravelly hills near the Organ Mountains, New Mexico; *Bigelow.* San Luis Mountain; *Capt. E. K. Smith.* Plant about a span high, much branched from a ligneous base, hairy and glandular, or the leaves and lower part of the stem nearly smooth. Teeth of the calyx scarcely as long as the tube. Corolla rose-color, the segments often a little emarginate. Style two-thirds as long as the tube of the corolla. Cells of the ovary 2-ovuled.

PHLOX TRIOVULATA (*Thurber MSS.*): canescenti-pubescens; caule erecto suffruticoso e basi ramoso; foliis anguste linearibus rigidiusculis; calycis laciniis subulatis tubo subæqualibus; corollæ tubo calyce tertio longiore, laciniis obovatis margine sæpe eroso-denticulatis; stylo ovario subæquante; loculis ovarii triovulatis. Ravines, Mule Spring; *Thurber, Bigelow.* Rio Mimbres; *Dr. Henry.* Escondido; *Parry.* Flowers from April to July. (No. 504, 1653, 1654, *Wright.*) Plant 6–12 inches high, the lower part of the stem decidedly shrubby. Leaves 1–1½ inch long, and 1–1½ line wide. Corolla white, ¾–1¼ inch in diameter. The tube nearly straight; segments varying from nearly orbicular to obovate, sometimes with a short mucro. Style and its deep divisions scarcely as long as the ovary. Ovules superimposed. This is the only species of Phlox hitherto found in which there are more than two ovules in each cell.

COLLOMIA GRACILIS, *Dougl.; Benth. l. c. p.* 308. New Mexico, Sonora, and California, March—May.

COLLOMIA GRANDIFLORA, *Dougl. in Lindl. Bot. Reg. t.* 1174; *Benth. l. c. p.* 308. Mountains east of San Diego; *Parry.*

NAVARRETIA ATRACTYLOIDES, *Hook. & Arn. Bot. Beech. p.* 368; *Benth. l. c. p.* 310. Dry places near San Diego and Monterey, California; *Parry.* San Pasqual, May, *Thurber.*

NAVARRETIA SCHOTTII (n. sp.): humilis; foliis lineari-oblongis inciso-dentatis glabriusculis, dentibus paucis patentibus integris spinescentibus; capitulis paucifloris; corollæ tubo calyce sublongiore; staminibus exsertis; ovarii loculis 2–3-ovulatis. In the Colorado Desert, Sonora; *Schott.* Plant 2 or 3 inches high, simple below. Leaves about three-fourths of an inch long, with 5–6 salient teeth on each side; the involucral ones similar in form to the others. Flowers apparently white, sessile. Segments of the calyx subulate, terminating in a long slender spine, or rather bristle. Segments of the corolla oblong, acute, mucronate. The specimens were col-

lected very early in the season, and the more advanced state of the plant is doubtless considerably taller and more branching.

Gilia virgata, *Steud. Nom.; Benth. l. c. p.* 311. Monterey, California; *Parry.* This species is certainly an annual.

Gilia Gunnisoni, *Torr. & Gray, in Pacif. Railroad Expl.* 2, (*Bot. Beckw. & Gunnis.*) *p.* 128, *t.* 9. Dry places along the upper Rio Grande and west to Sonora. (No. 1642; *Wright.*)

Gilia polycladon (n. sp.): caulibus plurimis subpatulis puberulis inferne nudiusculis apice foliosis cymoso-capitatis; foliis oblongis hirsutis pinnatifido-incisis segmentis oblongis plerumque integris vel 1–2-dentatis; calycis dentibus spinuloso-acuminatis; corollæ tubo calyce subæquali, laciniis oblongis; loculis ovarii biovulatis. Stony hills near El Paso, March. Annual, stems 4–8 from one root, slender terete, somewhat spreading, simple and mostly naked, except at the summit, where they branch into a leafy cymose tuft. Leaves mostly radical, about an inch long, pinnately cut into 9–11 oblong spreading lobes, which are mostly simple. The leaves of the stem are similar to the radical, only they are smaller. Fructiferous calyx as long as the capsule. Corolla white, with a tinge of rose-color. Allied to G. inconspicua.

Gilia achilleæfolia, *Benth. l. c.* 311. San Isabel, California, May; *Thurber.*

Gilia capitata, *Dougl. in Bot. Mag. t.* 2698; *Benth. l. c.* Common in most parts of California, from Oregon to San Diego, usually not far from the coast.

Gilia multicaulis, *Benth. l. c.* Near San Diego, March; *Parry.* Perhaps only a variety of the last.

Gilia tricolor, *Benth. l. c.* Napa county, California; *Thurber.*

Gilia inconspicua, *Dougl. in Bot. Mag. t.* 2883; *Benth. l. c.* Sandy and stony places, banks of rivers, from the Rio Grande, particularly near El Paso, westward along the Gila to California.

Gilia incisa, *Benth. l. c. p.* 312. Central and western Texas to the Rio Grande, also in New Mexico, Chihuahua, and Neuvo Leon. Plant 12–18 inches high. It appears to be both annual and biennial. Flowers white. The radical leaves often form a cluster, and are much less cut than the stem leaves.

Gilia rigidula, *Benth. l. c.* Hill sides and rocky ravines, western Texas, New Mexico, and Sonora, March—May. (No. 1645, *Wright.*) Perennial. Plant 4–10 inches high, branching from the base, viscidly pubescent or almost glabrous. Leaves mostly simply pinnatifid, with 5–7 distant rigid and pungent segments, which vary from oblong-lanceolate to very narrowly linear. The flowers are nearly three-fourths of an inch in diameter. Corolla bright blue, yellow in the throat. Cells of the ovary with several ovules.

Gilia multiflora, *Nutt. Pl. Gamb. in Journ. Acad. Phil.* (*n. ser.*) 1, *p.* 154. Hill sides near the Copper Mines, New Mexico, August; *Bigelow.* Sonora and Chihuahua, September; *Schott.* (Nos. 1646 and 1647, *Wright:* the latter with the tube of the corolla longer.) The stem rarely branches from near the root, except when the top has been injured.

Gilia aggregata, *Spreng. Syst.* 1, *p.* 626. G. pulchella, *Dougl.; Hook. Fl. Bor.-Amer.* 2, *p.* 74. Cantua aggregata, *Pursh, Fl.* 1, *p.* 147. Ravines and rocky banks of the Rio Grande, particularly near the Cibolo river; also near the Copper Mines, July—September. (No. 1650 and 1651, *Wright.*) A very ornamental plant. We have restored the older specific name of Pursh.

Gila longiflora, *G. Don, Gard. Dict.* 4, *p.* 245; *Benth. l. c.* Cantua longiflora, *Torr. in Ann. Lyc. N. York.* 2, *p.* 221 *& in Sitgr. Rep. p.* 165, *t.* 7. Common in western Texas, New

Mexico, Chihuahua and Sonora; flowering throughout the spring and summer. (No. 509, 1648 and 1649, *Wright.*)

GILIA DIANTHOIDES, *Endl. Atakt. t.* 29. Dry hills near San Diego, California, February; *Parry.* Coronados Islands, California, May; *Thurber.*

GILIA DICHOTOMA, *Benth. l. c.* Var. PARVIFLORA: floribus multo minoribus; corollis inexpansis. Cook's spring, and near Frontera, Texas, March—April; *Bigelow, Wright.* About 6 inches high. Leaves palmately 3-parted to the base; segments subulate and somewhat rigid. Corolla much smaller than in the Californian plant, and it does not seem to expand. In other respects I can find nothing to distinguish it. There are from 20 to 25 ovules in each cell of the ovary.

GILIA PHARNACEOIDES, *Benth. l. c.* Near the summit of the mountains east of San Diego, June; *Parry.*

GILIA AUREA, *Nutt. Pl. Gamb. l. c. p.* 155, *t.* 32. Copper Mines, New Mexico, April—May; *Parry.* Journado between Tucson and the Rio Gila, March; *Parry.* Ojo de Vaca, Chihuahua; *Thurber.*

GILIA LUTEA, *Steud. l. c.; Benth. l. c.; Bot. Mag. t.* 4735. Mountains east of San Diego, June; *Parry.*

GILIA ANDROSACEA, *Steud. l. c.; Benth. l. c.* Napa county, California, March; *Thurber.*

GILIA DENSIFLORA, *Benth. l. c.* Grassy places near Monterey, California; *Parry.* Not sufficiently distinct from G. grandiflora.

GILIA CALIFORNICA, *Benth. l. c.* Leptodactylon Californicum, *Hook. & Arn. Bot. Beech. p.* 369, *t.* 89. Near Santa Barbara, California; *Parry.* This species is decidedly shrubby. Dr. Antisell found it growing at Santa Inez, 3–5 feet high.

POLEMONIUM CŒRULEUM, *Linn.; Hook. Fl. Bor.-Amer.* 2, *p.* 71. Banks of the Mimbres, New Mexico, October, (in fruit); *Bigelow.* Stem 3 feet high, and, as well as the leaves glabrous. Segments of the leaves 17–21, lanceolate, acute, about an inch long. We find among our numerous specimens of this polymorphous species, some that accord very well with our New Mexican plant.

LŒSELIA GLANDULOSA, *G. Don, l. c. p.* 248. Hill sides near Mt. Carmel, Chihuahua; *Dr. Parry.* Neuvo Leon; *Dr. Edwards.* Dr. Gregg found it near Saltillo, Coahuila.

NAMA DICHOTOMA, *Choisy, Desc. Hydrol. p.* 19; *& in DC. Prodr.* 10, *p.* 182. Sandy prairies and along water courses, western Texas and New Mexico from Doña Ana to the Gulf, and westward throughout the Mexican States to Sonora and California. (No. 495, 1585 and 1586, *Wright.*) Very much branched, spreading or assurgent. Flowers pale purple, yellowish in the throat. Our plant resembles a Chilian specimen of N. dichotoma received from Dr. Arnott (which is part flowering), but differs from the description of Choisy in the corolla being half as long again as the calyx.

Var. PARVIFOLIA: caule tenui laxiuscule ramoso; foliis (semiuncialibus) obovatis obtusis basi in petiolum brevem attenuatis; floribus solitariis geminisque, pedicellis calyce dimidio longioribus. Santa Rosa, Chihuahua, January; *Bigelow.* Monterey, Neuvo Leon; *Dr. Edwards and Major Eaton.* Annual. Stem very slender, dichotomously branching, purplish. Lower leaves about half an inch long, abruptly narrowed at the base into a petiole which is less than half the lamina; upper leaves 3–5 lines long. Flowers nearly as in the larger variety.

Nama Jamaicensis, *Linn. Sp. p.* 327; *Choisy, l. c.* San Antonio, Texas; *Thurber.* Sonora and Chihuahua; *Schott, Parry.* It is No. 316 of Drummond's 2nd Texan Collection.

Eriodyction Califôrnicum, *Benth. Bot. Sulph. p.* 35; *Choisy in DC. Prodr.* 10, *p.* 185. Wigandia Californica, *Hook. & Arn. Bot. Beech. p.* 364, *t.* 88. Borders of the Lower Gila and on the mountains east of San Diego, California; *Major Emory.* Near Monterey and in other parts of California; *Parry.* A shrubby plant, commonly 3–5 feet high. The leaves are variable in breadth and toothing: one of the narrow-leaved forms being E. angustifolium, *Nutt.* The flowers are rather showy and of a light purplish-blue color. The plant has a strong terebinthine taste, and abounds in a resinous matter which sometimes exudes so copiously from the stalks and leaves that in drying, the specimens stick firmly to each other and to the paper. The natives of California make an infusion of the leaves and use it as a tonic.

Eriodyction tomentosum, *Benth. l. c.* E. crassifolium, *Benth. l. c.* Sandy fields around San Diego, June; *Parry, Thurber.* This is a taller species than the preceding, growing from 6–8, and sometimes even 10 feet high. Like that, it is variable in the form and toothing of the leaves, and we have no hesitation in uniting the two species of Bentham here quoted. We have specimens that are intermediate, and Dr. Parry informs me, that he has seen them in California passing into each other.

FOUQUIERIACEÆ.

Fouquieria splendens, *Engelm. in Wisliz. N. Mex. p.* 98; *Gray, Pl. Wright.* 1, *p.* 85, & 2, *p.* 63. Gravelly hills on the Rio Grande, from El Paso to the great cañon 60 miles below, April—May.

CONVOLVULACEÆ.

Convolvulus lobatus, *Engelm. & Gray, Pl. Lindh. p.* 44. C. hastatus, *Nutt. in Trans. Amer. Phil. Soc. (n. ser.)* 5, *p.* 194, *non Thurb.* C. Nuttallii, *Torr. in Emory's Rep. p.* 149. Hillsides and ravines; common in western Texas and New Mexico, along the Rio Grande; flowering through the season. Cañon of Guadalupe, Sonora; *Capt. E. K. Smith.* Near the next species.

Convolvulus Hermanniæ, *Herit.; Choisy, l. c.* River banks and ravines; Presidio Falls, Rio Grande to Eagle Pass, March—November; *Schott, Bigelow.*

Convolvulus Californicus, *Choisy in DC. Prodr.* 9, *p.* 405. Hillsides near Monterey, California, May; *Parry.*

Quamoclit coccinea, *Moench; Choisy, l. c. p.* 335. Magdalena in Sonora, *Thurber.* Copper Mines, August, (fl & fruit); *Bigelow.* (*Wright,* No. 1611.) The leaves in Dr. Bigelow's specimens are deeply 3-parted; the lateral divisions more or less angularly lobed at the base.

Calystegia sepium, *R. Br. Prodr. p.* 483; *Choisy, l. c. p.* 433. Near San Diego, California, May; *Thurber.* C. Maximiliana, *Nees, in Maximil. Trav.* seems to be only a variety of this species.

Calystegia Soldanella, *R. Br. Prodr. p.* 483; *Choisy, l. c.* Seabeach, Monterey and other places along the coast of California.

Batatus littoralis, *Choisy in DC. Prodr.* 9, *p.* 337. Convolvulus obtusilobus, *Michx. Fl.* 1, *p.* 139. Mouth of the Rio Grande and coast of the Gulf of Mexico, May; *Schott.*

Ipomœa pandurata, *Mey.; Choisy, l. c. p.* 381. Wet places, near running water; western Texas, Oct.; (fl. & fr.); *Bigelow.* Leaves all entire and heart-shaped. Sepals varying from oblong to ovate, and from very obtuse to rather acute and mucronate.

Ipomœa tenuiloba (n. sp.): glabra; caule volubili; foliis petiolatis pedatis lobis 5–7 filiformibus integris; pedunculis unifloris petiolo subæqualibus; sepalis oblongo-lanceolatis acutis,

corolla ($2\frac{1}{2}$ unciali) tubulosa, brevi-5-loba; capsula globosa glabra. Hills and rocky places near Puerto de Paysano, western Texas, September; *Bigelow.* (No. 1617, *Wright*, is a variety with the segments of the leaves broader.) Stem several feet long, twining around other plants. Segments of the leaves 1–2 inches long, usually not more than half a line wide. Peduncle with 2 subulate bracteoles at the summit, thick and mostly recurved; the pedicel about the length of the peduncle. Tube of the corolla trumpet-shaped, more than two inches long; the limb rose color.

IPOMŒA HETEROPHYLLA, *Orteg.* Pharbitis heterophylla, *Chois. in DC. Prodr.* 9, *p.* 344. Rocky hills and prairies along the Rio Grande; also on the Rio Limpio and Devil's river. (Nos. 508, 509, a very hairy form, and 1613, *Wright.*) Sepals an inch long. Corolla more than three inches long, pale rose color.

IPOMŒA NIL, *Roth.* Pharbitis Nil, *Chois. l. c.* Western Texas; *Wright*, Nos. 1037 and 1612. Magdalena, Sonora, October; *Thurber.*

IPOMŒA LONGIFOLIA, *Benth. Pl. Hartw. p.* 16 *&* 345. I. Shumardiana, *Torr. in Bot. Marcy's Rep. p.* 291. Santa Cruz valley, Sonora, July; *Thurber.* "The prostrate branches are 6–10 feet long, forming large patches which are very conspicuous in the prairies. Flowers opening in the morning, white with a purple throat," (*Thurber*,) limb nearly three inches in diameter. This differs from Captain Marcy's plant in the larger flowers, but not in other respects. After comparison with an original specimen of I. longifolia, I think it must be united with that species.

IPOMŒA PES-CAPRÆ, *Sweet; Choisy, l. c. p.* 349. I. orbicularis, *Ell. Sk.* 1, *p.* 257. Sandy shores, Brazos Santiago, Texas, May; *Schott.*

IPOMŒA COMMUTATA, *Roem. & Sch. Syst.* 4, *p.* 228. I. trichocarpa, *Ell. Sk.* 1, *p.* 258? In cultivated grounds. Rancho San Christobel, lower Rio Grande, May; *Schott.* Our specimens agree with Berlandier's No. 1931, quoted by Choisy. The species seems to be perennial. The capsule is smooth.

IPOMŒA SINUATA, *Orteg.; Choisy, l. c. p.* 362. I. dissecta, *Pursh*, non *Willd.* Convolvulus dissectus, *Linn.; Michx. Fl.* 1, *p.* 139. In shady places along the Rio Grande, from the Presidio down to Eagle Pass; August—November. A widely spread species. We have it from Monterey, Mexico, collected by Dr. Edwards and Dr. Gregg. It occurs also in the West Indies and as far south as Brazil.

IPOMŒA LACUNOSA, *Linn.; Choisy, l. c. p.* 378. Alluvions of the Rio Grande, September, October.

IPOMŒA COSTELLATA (n. sp.): herbacea, glabriuscula, ramosa; foliis petiolatis pedatim 7–9-partitis, segmentis linearibus vel spathulato-linearibus integris ciliolatis; pedunculis 1–3-floris petiolum paullo superantibus; sepalis oblongis acutis exterioribus medio subcarinatis vel ruguloso-muricatis; corolla (semi pollicari) tubulosa brevilobata; capsula glabra. On the Rio Grande, from the mouth of Pecos to El Paso, and near the Copper Mines of New Mexico; July–October. (Nos. 505 and 1615, *Wright.*) Annual. Stems, 1–5 feet long, prostrate or climbing, slender. Leaves $1–1\frac{1}{2}$ inch long, divided nearly to the base into 7–9 mostly very narrow lobes; petiole about as long as the limb. Pedicels thickened. Calyx glabrous, the exterior sepals more or less conspicuously carinate or even winged; the keel rugose-undulate, or sometimes muriculate. Corolla scarcely half an inch long, pink, the border with 5 short lobes. Style undivided; stigma capitate, two-lobed, and granulate. Capsule sub-globose, two-celled, the cells two-seeded. Seed hairy. This species is allied to I. Coptica.

IPOMŒA MURICATA (*Cav. Ic.* 5, *p.* 52, *t.* 478, *f.* 2, *ex Choisy, l. c. p.* 353): glabra; radice tuberosa globosa; caule prostrato; foliis subsessilibus palmatis, lobis 5–7 integris anguste linearibus vel lobo medio lineari-lanceolato; pedunculis unifloris brevibus (2–4 lin.); sepalis lanceolatis obtusiusculis, dorso muriculato; corolla tubulosa (unciali purpureo-coccinea) breviter 5-loba; capsula glabra. Sonora, Mexico; *Thurber*, September. (No. 1616, *Wright.*) Root a roundish tuber from half an inch to an inch or more in diameter. Stem a span long, slender. Leaves about an inch long, most of the segments scarcely half a line wide. Corolla almost trumpet-shaped.

IPOMŒA LEPTOTOMA (n. sp.): annua; caule prostrato (vix volubili) glabro; foliis petiolatis pedatis glabriusculis, lobis 5–7 linearibus ciliolatis integris, lobo medio elongato; pedunculis 1–2-floris petiolo multo longioribus; pedicellis calycibusque hispidulis; sepalis lanceolatis, apice attenuatis acutissimis; corolla campanulato-infundibuliformi ($1\frac{1}{2}$ unciali.) Near Santa Cruz valley, Sonora, September; *Thurber.* (No. 1614, *Wright.*) Stem branching from the root; the branches 1–$1\frac{1}{2}$ foot long, somewhat twining. Petioles 2–4 lines long. Leaves deeply divided in a pedate manner, the lobes scarcely a line wide, the middle lobe usually almost twice the length of the lateral ones; uppermost leaves often entire. Peduncle 1–2 inches long; the pedicels scarcely half an inch. Sepals about 4 lines long. Corolla with a bright reddish purple limb and a pale tube.

IPOMŒA FASTIGIATA, *Sweet?; Choisy, l. c. p.* 380? On the banks and in the bed of the San Pedro, Western Texas; September, (fl. & fr.); *Bigelow.* Seems to differ in the sepals being only mucronate and scarcely aristate.

EVOLVULUS ALSINOIDES, *Linn. Sp.* 392; *Choisy, l. c. p.* 447. Rocky hills, near Camp Bache, July; *Bigelow.* Corallitas, Chihuahua, *Aug.;* and Sonora, Mexico; *Thurber.* No. 1619, *Wright*, is a form with narrow leaves.

Var. HIRTICAULIS: caule hirsuto, pilis longis patentibus; foliis ovato-oblongis, obtusiusculis. Brazos, San Jago, Texas, and on the Rio Grande near the San Pedro river, May—September; *Schott.* Western Texas, *Wright.* Monterey, Mexico; *Dr. Edwards.*

Var. ANGUSTIFOLIA: caule hirsuto, pilis sparsis longis patentibus; foliis lineari-lanceolatis, acutis. Near the Great Cañon of the Rio Grande, August; *Parry.*

EVOLVULUS? OVALIFOLIUS (n. sp.): undique velutino-sericeis; caule prostrato e basi ramosissimo; foliis ovatis (pollicaribus 6–8 lin. latis) obtusiusculis crassiusculis, basi rotundatis vel subcordatis; floribus solitariis axillaribus brevissime pedicellatis; sepalis late ovatis mucronatis; capsulis monospermis. On the Rio Grande, below San Carlos, October; *Parry.* The specimens are in fruit only.

EVOLVULUS HOLOSERICEUS β OBTUSATUS, *Chois. l. c.* E. sericeus, *Nutt. Gen.* 1, *p.* 174, *non Swartz.* E. discolor, *Benth. Pl. Hartw. p.* 6. Rio Grande, near the San Pedro river, and near Yorktown, October; *Schott.* A more densely cespitose form, with shorter branches, occurs near the Copper Mines, June; *Bigelow.* Monterey, Neuvo Leon; *Dr. Edwards.* Cerralbo; *Gregg.* The pubescence, as in the next species, is reddish, at least in dried specimens; the peduncles are only one-flowered; the sepals are scarcely two lines long, and the leaves are often more than an inch in length. It may prove to be a distinct species. The peduncles of the early flowers are sometimes nearly as long as the leaves.

EVOLVULUS ARGENTEUS, *Pursh, Fl.* 1, *p.* 187; *Choisy, l. c.* E. pilosus, *Nutt. Gen.* 1, *p.* 174, *& in Trans. Amer. Phil. Soc. n. ser.* 5, *p.* 195, non *Lamarck.* E. Nuttallianus, *R. & Schult.* Gravelly hills, near Rock Creek and Van Horne's Wells, June—July; *Bigelow, Wright.* Copper Mines, N. Mexico; *Thurber.* Chihuahua; *Gregg.* It is No. 668 of Fendler's N. Mexico

Coll. A common species on the upper Arkansas. The specific name of Pursh is inappropriate, for the hairyness is rusty-colored, and not silvery. Perhaps E. holocericeus is not distinct.

Dichondra repens, *Forst. Gen. p.* 39, *t.* 20; *Choisy, l. c. p.* 451. Var. Carolinensis, *Choisy, l. c.* D. Carolinensis, *Michx. Fl.* 1, *p.* 36. Rock Creek and Copper Mines, May—July; *Bigelow.* Santa Cruz Mountains, Sonora; *Thurber.* The leaves are commonly larger than in the plant of the southeastern States.

Dichondra argentea, *Willd. Enum. Hort. Ber. p.* 297; *Choisy, l. c.* Rocky hills on the Rio Grande, below El Paso, June—August; *Parry, Bigelow.* Chihuahua; *Thurber.* (*Wright,* No. 1621.)

Cressa Cretica, *Linn.* Var. Truxillensis, *Choisy, l. c. p.* 440. C. Truxillensis, *H. B. K. Nov. Gen. & Sp.* 3, *p.* 119. Low and sandy places. Laguna de Lache, Solado, Mexico, April; *Bigelow.* On the Gila, Sonora, June; *Thurber.* (No. 1618, *Wright.*) Saline soils, San Diego, California; *Parry.* Bolson de Mapini, Mexico; *Gregg.* Differs from our European specimens of C. Cretica, in being more upright, with considerably larger leaves and flowers, and in the linear-oblong (not roundish-ovate) anthers. The fruit, too, is mostly one-seeded. Still we follow Choisy, in regarding it as but a variety C. Cretica.

Cuscuta. Dr. Engelmann, of St. Louis, has long been occupied in preparing a monograph of this genus, which will be published on his return from Europe. Although I have his determinations of a large proportion of the species collected in the Mexican Boundary Survey, I think it better to wait until his monograph appears, and thus to have the advantages of his latest researches, rather than publish my own observations on this difficult genus.

SOLANACEAE.

Solanum Jamesii, *Torr. in Ann. Lyc. N. York,* 2, *p.* 227. *Gray, in Sill. Jour. n. ser.* 22, *p.* 284; On the upper Rio Grande; west to the Copper Mines of New Mexico and the Zuni Mountains. Rocky places, Puerto de Paysano. Tuber about the size of a marble. The specimens collected by Dr. James, in Long's Expedition, were imperfect and erroneously described as annual.

Solanum Fendleri, *Gray, l. c.* Near the Copper Mines, New Mexico; *Bigelow.* Near S. tuberosum, but differs in the segments of the leaves being nearly uniform in size; usually the lowest pair only being very small. The tubers, in the wild plant, are seldom more than half an inch in diameter.

Solanum triflorum, *Nutt. Gen.* 1, *p.* 128. On the upper Rio Grande. (No. 675 Fendl. Pl. N. Mex.) This is more common on the tributaries of the Red, Arkansas, and Missouri rivers.

Solanum nodiflorum, *Jacq. Ic. Rar.* 2, *t.* 326, *ex Dunal in DC. Prodr.* 13, *pars* 1, *p.* 46. Western Texas and on the Rio Grande from the mouth of the Limpio downward, June—July. (No. 524, 892 and 1904, *Berlandier.*) Perhaps only a variety of S. nigrum; and S. crenato-dentatum, *Dunal, l. c.* (at least the plant of Berlandier) is probably only another form of the same species.

Solanum Douglasii, *Dunal, l. c.* Moist places, San Luis Rey, California; *Parry.* Plant 8–10 feet high; flowers bright blue. Dr. Parry says that the stem is somewhat woody at the base, and that the berries are eaten by children; but it has very much the appearance of the last species.

Solanum umbelliferum, *Esch. in Mem. St. Petersb.* 10, *p.* 280; *Torr. in Whipp. Rep. p.* 127. S. Californicum, *Dunal, l. c. p.* 86. S. genistoides, *Dunal, l. c. p.* 85. S. Menziesii, *Dunal, l. c. p.* 159. In California; *Parry.* In most parts of California; but more common near the

sea. It is extremely variable in the form and size of the leaves, as well as in the degree of pubescence. Being a hardy, suffruticose species, and bearing a profusion of handsome blue flowers throughout the season, it deserves a place in our gardens.

Solanum Lindheimerianum, *Scheele in Linnæa*, 21, *p.* 766. S. triquetrum, *B. Dunal, l. c. p.* 154. Sandy and shady places, central and western Texas, and along the Rio Grande, from the mouth of the Pecos, downward; flowering throughout the season. (No. 1591 and No. 536, the latter a narrow-leaved form, *Wright;* No. 481, *Lindheimer;* No. 154 and 1416, *Berlandier.*) Variable in the size and breadth of the leaves, as well as in the length of the auricles. This is, perhaps, too near S. triquetrum. Dr. Engelmann formerly distributed the plant under the manuscript name of S. dulcamaroides, but he published no description of it.

Solanum elæagnifolium, *Cav. Ic. t.* 243; *Dunal, l. c. p.* 290. S. flavidum, *Torr. in Ann. Lyc. N. York*, 2, *p.* 227. S. Texense, *Engelm. & Gray, Pl. Lindh.* 1, *p.* 19. S. Roemerianum, *Scheele in Linnæa.* 21, *p.* 767. S. Hindsianum, *Benth. Bot. Sulph. p.* 39? Texas and New Mexico, especially along the Rio Grande and westward to California. (No. 1590, *Wright.* No. 659, 665 and 2069, *Berlandier.*) S. Texense differs only in being destitute of prickles; but intermediate forms are common. Dr. Gregg, who found this plant in all the Mexican States that he visited, remarks, in his notes, that the natives, who call the plant *Trompillo,* use the fruit for curdling milk, and likewise as a sudorific and sternutatory.

Solanum rostratum, *Dunal, Solan. p.* 234, *& in DC. Prodr. l. c.* S. heterandrum, *Pursh, Fl.* 2, *p.* 731, *t.* 7. S. Bejariense, *Moricand; Dunal, l. c.* Androcera lobata, *Nutt. Gen.* 1, *p.* 129. Nycterium lobatum, *Sweet.* N. luteum, *Donn; Torr. l. c.* Common in Texas and New Mexico, extending westward through the neighboring Mexican States. Perhaps not distinct from S. cornutum.

Solanum citrullifolium, *A. Braun in Ind. Sem. H. Frib.* 1849, fide *A. DC. Prodr.* 13, *pars* 1, *p.* 682. S. heterodoxum, *Jacq. Ecl. Pl. Rar.* 2, *t.* 103. Plains near Puerto de Paysano and near the Limpio; July—September; *Bigelow.* Flowers large, violet, an inch in diameter. The last three species belong to a remarkable group (Cryptocarpum, *Dunal,*) which Nuttall regarded as a proper genus, (Androcera.) It is chiefly distinguished by the fruit being completely inclosed in enlarged tube of the calyx.

Solanum heterodoxum, *Dunal, l. c. p.* 331? On the Rio Grande, below Presido del Norte; August; *Parry.* Corallitas, Chihuahua; *Thurber.* Differs from the last in the excessively hispid stem and branches, and in the much smaller flowers.

Solanum verbascifolium, *Linn. Sp. p.* 263; *Dunal, l. c. p.* 114. Near Monterey, Neuvo Leon; *Dr Edwards, Dr. Gregg.* Between Victoria and Tamaulipas; *Berlandier,* No. 806. A tall, suffruticose species; common in the warmer parts of America and Asia. Dr. Gregg says that the Mexicans call it *Yerba de San Pedro,* and that they use the plant made into a poultice as an application to ulcers and boils.

Capsicum microphyllum, *Dunal, l. c. p.* 421. Western Mexico, Chihuahua, Neuvo Leon, etc.; common. It is used, like other red peppers, by the Mexicans, who call it *Chipatane.* The specific name is not appropriate.

Physalis lobata, *Torr. in Ann. Lyc. N. York,* 2, *p.* 226. Solanum luteiflorum, *Dunal, l. c. p.* 64. Borders of the Rio Grande, from New Mexico to Eagle Pass, March—October. (No. 1595, *Wright.*) Dr. James collected this plant only in the early state, without fruit, except a single fructiferous calyx. We have, however, from the valley of the Rio Grande, numerous specimens of what is clearly the same species in a mature state, and which is the same as No.

1604 of Wright's Collection. The stem is 12–18 inches long, prostrate, and much branched. The leaves vary from coarsely sinuate-toothed to nearly entire. Flowers solitary, on pedicels which are much longer than the petioles. Corolla campanulate-rotate, purple, half an inch or more in diameter. Fructiferous calyx nearly as broad as long and much larger than the berry. Seeds irregular in outline, less compressed, and thicker on the edge than is usual in this genus; the testa cellular and spongy.

PHYSALIS PUMILA, *Nutt. in Trans. Amer. Phil. Soc.* (*n. ser.*) 5, *p.* 193; Var.? SONORÆ: glabra, foliis lanceolatis integris. Fronteras, Sonora; June, *Thurber.* About a foot high, apparently erect, branching towards the summit Leaves solitary, 2–3 inches long, and 5–7 lines wide, attenuated at the base into a petiole. Flowers solitary, on pedicels which are shorter than the petioles. Segments of the calyx as long as the tube, triangular-lanceolate, acute. Corolla campanulate, yellowish, immaculate.

PHYSALIS LANCEOLATA; *Michx.* Var.? SPATHULÆFOLIA: prostrata dichotome ramosa minute pubescens; foliis spathulatis vel oblongo-spathulatis obtusis basi attenuatis solitariis vel geminis; pedunculis solitariis petiolo sublongioribus erectis; calycibus campanulatis dentibus tubo duplo brevioribus; corolla rotato-campanulata purpureo-maculata. On the sea beach near the mouth of the Rio Grande, May; *Schott.* We have a viscidly stellate-pubescent form, collected by Drummond in southern Texas, probably on the shore of the Gulf.

PHYSALIS LONGIFOLIA, *Nutt. l. c.?; Dunal, l. c.* Alluvions of the Rio Grande, 35 miles below San Elceario, and near the Copper Mines, June—July; *Bigelow.* Lower Rio Grande; *Schott.* We have also specimens collected by Lieut. Abert, on the upper Canadian, in 1846. Our plant differs from the descriptions given by Nuttall and Dunal in scarcely any respect except the narrower leaves. We have, however, only the upper part of the plant, on which the leaves (including the petiole) are rather oblong-lanceolate than ovate-lanceolate. Some of them are about 4 inches long. The root, according to Nuttall, is perennial.

PHYSALIS ALKEKENGI β DIGITALIFOLIA, *Dunal, l. c. p.* 438. Along the Rio Mimbres, New Mexico, May; *Thurber.* Near the Copper Mines; *Bigelow.* Sierra del Pajarito, Sonora; *Schott.* Probably, as Dunal suspects, a distinct species.

PHYSALIS MOLLIS, *Nutt. l. c.* Western Texas, and near the Copper Mines; *Thurber.* Nos. 1599 and 1600, *Wright*, seem to be only forms of this species; and 1597 a smoother form of the same. We have also specimens collected near Monterey. Flowers dull yellow, with dark purple spots at the base. It is near the preceding species.

PHYSALIS CARDIOPHYLLA (n. sp): perennis; caule petiolisque minute puberulis; foliis plerumque solitariis late cordatis grosse sinuato-dentatis longe petiolatis glabriusculis utrinque viridibus; pedicellis petiolo longioribus; calyce campanulato, dentibus tubo dimidio brevioribus; corolla (lutea) infundibuliformi-rotata immaculata. Sonora, and California, desert of the Colorado; flowers throughout the season; *Schott.* Stem 12–18 inches long, branching from the root, ascending or prostrate. Leaves ¾–1½ inch long, and nearly as broad as long, slightly succulent, sometimes nearly entire; the petiole about as long as the lamina. Pedicels mostly longer than the petioles. Calyx 2 lines long, the teeth triangular and acute. Corolla half an inch in diameter. Anthers equal, yellow. Fructiferous calyx ovate, an inch and a quarter long. Fruit the size of a small cherry. Seeds orbicular-reniform, much compressed, with a nearly even testa.

Several other species of this difficult genus are in the Mexican Boundary Collection, but they cannot at present be determined satisfactorily, either from the imperfection of the specimens, or for want of the means of comparison.

MARGARANTHUS SOLANACEUS, *Schlecht. Ind. Sem. Hort. Hal.* 1838, *p.* 8, *& Hort. Hal. p.* 1, *t.* 1 ; *Dunal, l. c. p.* 453. Santa Rita del Cobra, New Mexico, July—August ; *Bigelow.* (No. 1603, *Wright.*) No. 1220 of Coulter's Mexican Collection. Our New Mexican specimens and those of Mr. Wright are considerably smaller than the plant represented by Schlechtendal, but his figure was taken from a cultivated specimen. Coulter's plant agrees exactly with the figure.

LYCIUM PALLIDUM, *Miers, Ill. S. Amer. Pl.* 2, *p.* 108, *t.* 67, *C.* Gravelly hills near the Rio Cibolo of the Rio Grande ; also in Chihuahua and near the Copper Mines, New Mexico, April—July ; *Bigelow.* (No. 760, *Fendler.*) It was also found by Frémont in 1844, on the Rio Virgen, a branch of the Colorado, western New Mexico. A shrub 3–4 feet high. Flowers greenish, larger than in any other North American species of this genus. It is remarkable for the loose campanulate calyx, the broad obtuse divisions of which are longer than the tube.

LYCIUM STOLIDUM, *Miers, l c. p.* 126, *t.* 71, *C.* On the Rio Grande, from the Presidio down to Laredo, May ; *Schott.* (Nos. 540 and 1610, *Wright.*)

LYCIUM BARBINODE, *Miers, l. c. p.* 115, *t.* 68, *E.* On the upper Rio Grande and westward to the Rio Grande, March—April. A shrub about 5 feet high.

LYCIUM BERLANDIERI, *Dunal in DC. Prodr.* 13, *pars* 1, *p.* 521. Borders of the Rio Grande, from El Paso to Eagle Pass, March—April. Nos. 1604 and 1608, *Wright,* seem to be hardly distinct. A branching shrub 2–6 feet high. Flowers pale purple.

DATURA METELOIDES, *DC. MSS. ; Dunal, l. c. p.* 544. Western Texas, Chihuahua, Sonora, and other Mexican States ; common.* (No. 1606, *Wright.*)

* "This fine Datura, which has all the appearance of being indigenous in New Mexico and the adjacent provinces of Mexico, must be the D. meteloides named by De Candolle, and described by Dunal in the Prodromus from one of the drawings by Mocino and Sesse. But the distinctions between it and D. Metel are not well stated ; nor did Dunal himself identify the specie in the specimens from Berlandier's collection, No. 2156, gathered at Victoria, Tamaulipas, but referred them to D. Metel, and, in consequence, Alphonse De Candolle, in the *Geographie Botanique*, 2, *p.* 735, allows them to have considerable weight in favor of the American origin of D. Metel. The only reason for doubting our New Mexican plant to be De Candolle's D. meteloides is, that Dunal described it as having a ' corolla 10-dentata,' which our plant has not. But the slight folds answering to the sinuses may have been exaggerated and misunderstood. From seeds gathered by Mr. Wright this species has been cultivated in the Cambridge Botanic Garden for several years, for the past two years by the side of Datura Metel. The leading diagnostic characters of the two may be expressed, as follows :

"D. METEL, *Linn :* viscidulo-pubescens ; caule subvilloso ; corollæ tubo ultra calycem sensim modice dilatato, limbo 10-dentata ; basi calycis persistente subcapsula ampla.

"D. METELOIDES, *DC.:* pruinoso-glaucescens, vix puberula ; flore suaveolente ; corolla supra calycem cylindricum valde dilatata, limbo eximie 5-dentato ; basi calycis subcapsula persistente angusta ; foliis integerrimis.

"D. meteloides, although with us a lower plant than D. Metel, is more showy ; its corollas (tinged with bluish purple) are more dilated-funnelform and larger, measuring 5 or 6 inches in diameter of the limb, and often 8 inches in length ; and what may be called the limb is on each side equal in length to the part of the tube which projects beyond the calyx. In D. Metel the throat is much narrower, and the limb proportionally smaller, say 4 or 4½ inches in diameter. In D. meteloides there are no teeth or projections whatever at the sinuses of the corolla, nor does the slight plaiting there give the appearance of teeth ; but the five proper teeth are very salient, narrowly subulate, and half an inch in length. The capsule is nearly glabrous, and with shorter prickles than the cultivated D. Metel, but otherwise similar, as are the seeds ; the persistent and reflexed base of the calyx, however, is much smaller. The herbage has somewhat of the disagreeable odor of D. Metel, but the flowers are sweet-scented." *A. Gray.*

DATURA THOMASII, *Torr. Bot. Pacific R. Road Rep.* 5, *p* 362. Borders of the Colorado, near Fort Yuma: *Schott.* Mr. Thurber collected at Corallitas in Chihuahua, a Datura resembling this species, but with the capsule armed with only a few (about 20) very long and rigid slightly pubescent prickles. Both may be extreme forms of D. Stramonium.

NICOTIANA PANDURATA, *Dunal, l. c. p.* 569. Alluvions of the lower Rio Grande, Western Texas, and in the Mexican States on the west. Not very distinct from N. Roemeriana, *Scheele.* No. 630 and 3000 Berlandier's Coll. (from Matamoras) we think should be referred here.

PETUNIA PARVIFLORA, *Juss. Ann. Mus.* 2, *p.* 216, *t.* 47; *Miers Ill. t.* 23, *Dunal in DC. Prodr.* 13, *pars* 1, *p.* 575. Leptophragma prostrata, *Benth. in Dunal, l. c. p.* 578. Salpiglossis prostrata, *Hook. & Arn. Bot. Beech. p.* 153. Borders of the Rio Grande, lower Rio Grande and in the Mexican States westward to California. (No. 539 and 1587, *Wright.* No. 215 and 1475, *Berlandier.*)

NIEREMBERGIA (LEPTOGLOSSIS) VISCOSA (n. sp.): viscoso-pubescens; foliis elliptis-oblongis acutiusculis basi angustatis, inferioribus longiuscule petiolatis; floribus subaxillaribus; pedicellis calyce infundibuliformi-campanulata subæqualibus; calycis laciniis oblongis acutis tubo dimidio brevioribus; tubo corollæ elongato gracili apice gibboso.—Rocky hills, mouth of the Pecos, and on Devil's river, western Texas; *Bigelow.* (No. 535, *Wright.*) Root often annual, but sometimes, apparently, perennial. Stem 6–10 inches high, usually branching from the root. Leaves 8–10 lines long and 2–4 lines wide. Pedicels often extra-axillary, shorter than the leaves. Calyx funnelform-campanulate, about four lines long. Corolla nearly an inch long, the very slender tube more than twice the length of the calyx, saccate and somewhat gibbous at the throat; limb purple, more than half an inch in diameter, rather unequally 5-lobed, the lobes roundish and entire. Stamens inserted in the succate throat of the corolla and included, two of them with short curved filaments and large roundish 2-celled anthers, 2 others with straight filaments and much smaller 1-celled anthers, the 5 stamen a mere abortive filament. Ovary ovate acute; style elongated and filiform; stigma dilated and somewhat petaloid, 2-lobed at the base, truncate and 2-lipped at the summit. Capsule much smaller than the fructiferous calyx, roundish ovate. Seeds oblong, a little curved, strongly corrugated transversely and somewhat spirally. Embryo moderately curved.

WITHANIA? SORDIDA, *Dunal, l. c., p.* 456. Western Texas from New Mexico to the lower Rio Grande; near Monterey, Neuvo Leon; *Dr. Edwards.* Balson de Mapini; *Gregg.* (Nos. 531, 532, 533, 1596, and 1598, the last a broad leaved form, *Wright.* No. 676, *Fendler,* N. Mex.) Perennial; villous pubescent, the pubescence partly glandular. Leaves 1–1½ inch long. Pedicels 6–10 lines long. Calyx broadly campanulate, villous; corrolla 6 lines in diameter, dull yellow. Fruit the size of a large pea.

WITHANIA? CORONOPUS. Solanum Coronopus, *Dun. in DC Prodr.* 13, *pars* 1 *p.* 64. Along the Rio Grande and its tributaries, from El Paso to Laredo, April—July. (Nos. 534, 1593, and 1594, *Wright.* Nos. 74 and 480, Coll. 1846, and 484, Coll. 1847–8, *Lindheim.* No. 675, *Fendl.,* N. Mex. Nos. 666 and 3023, *Berlandier.* No. 1252, *Coult. Mex.*) Root annual? Plant roughish with minute short and thick hairs, which are bifurcate at the summit. Leaves lanceolate, 1–1½ inch long, more or less deeply pinnatifid or merely toothed, the upper part often linear and entire. Flowers solitary, on slender pedicels which are at length reflexed. Corolla dull yellow, about 6 lines in diameter. Fruit globose, the size of a large pea, nearly white when mature, about two-thirds covered with the calyx. This plant is certainly a congener of the last, which we have followed Dunal in referring doubtfully to Withania. The calyx increases with the fruit,

but never encloses it, nor does it become inflated. The corolla is much more rotate than campanulate.

NIEREMBERGIA ANOMALA, *Miers in Hook. Lond. Jour. Bot.* 5, *p.* 175, *& Ill.* 1, *t.* 20; *Dunal, l. c. p.* 588, Leucanthea Roemeriana, *Scheele in Linnæa* 25, *p.* 250. Bouchetia erecta, *DC. MSS.; Dunal, l. c.* Western Texas; *Wright.* Near Monterey, Neuvo Leon; *Dr. Edwards.* (No. 345 Coll. III, Texas, *Drummond.*) This corresponds exactly with the figure of Miers, who states that the Texan plant differs in no respect from the South American N. anomala. Stamens sometimes only 4 and subdidynamous, or when 5 one of them smaller. Seeds roundish, reticulate.

BROWALLIA (LEPTOGLOSSIS) TEXANA (n. sp.): annua, vicoso-pubescens; caule e basi ramoso erecto; foliis alternis integerrimis basi in petiolum attenuatis; floribus extra-axillaribus ad apices ramorum laxe subcymosis; pedicellis calyce campanulato-tubuloso subinflato subæqualibus; corollæ tubo gracili apice subgibboso calyce triplo longiore, limbi laciniis orbicularis subæqualibus. Near the mouth of the Pecos, September—October; *Bigelow, Pope.* (No. 535, *Wright.*) Plant a span high, dull green; leaves about three-fourths of an inch long, rather acute. Pedicels 3–5 lines long. Calyx 5-cleft; the lobes ovate and acute. Corolla salver-form; the tube very slender, 8 lines long, gibbous at the summit; limb flat and somewhat oblique, 6 lines in diameter, purple. Stamens inserted in the throat of the corolla, didynamous. Capsule globose-ovate, scarcely one-third the length of the fructiferous calyx; the valves at length bifid at the summit. Seeds irregularly oblong, strongly rugous transversely. Embryo a little curved. This plant clearly belongs to Leptoglossis of Bentham, and is nearly related to L. Schwenkioides. We think the genus should be united to Browallia. We are also disposed to adopt the views of those botanists who would remove the tribe Salpiglossideæ from Scrophulariaceæ to Solanaceæ; but we are not prepared to go so far as to unite these plants and certain tribes of the latter family into an intermediate order. The limits of these orders can not yet be fixed with any degree of precision.

GENTIANACEÆ.

FRASERA SPECIOSA, *Dougl. MSS.*; *Hook. Fl. Bor.-Amer.* 2, *p.* 66, *t.* 153. Copper Mines, New Mexico, and near the Rio Mimbres, June; *Bigelow.* Capsules slightly compressed, contrary to the valves; 40–50-seeded.

FRASERA PARRYI (*Torr. in Pl. Whippl. p.* 126): caule erecto tereti glabro; foliis caulinis oppositis ternisve lanceolatis undulatis, floralibus (bracteis) ovatis pedicellis multo brevioribus; sepalis ovatis albo-marginatis; petalis ovato-lanceolatis sepala subæquantibus, fovea lunata solitaria, corona obsoleta. Mountains east of San Diego, California, on the eastern slope, June; *Parry.* No. 558, California, *Coulter.* Stem 2–3 feet high. Radical leaves clustered, the upper cauline ones mostly ternate, the whorls remote. Flowers numerous, in a terminal panicle nearly an inch in diameter. Petals greenish white, speckled with purplish linear dots; the pit or gland lunate, with the horns pointing upward, fringed with hairs around the margin. Corona a mere narrow, slightly ciliate border. Fruit not known. Nearly allied to F. Carolinensis, but that species has the leaves in 4s and 5s, a leafy panicle, linear lanceolate sepals, and roundish-oval entire glands.

ERYTHRÆA CHIRONIOIDES. Gyrandra chironioides, *Griseb. in DC. Prodr.* 9, *p.* 44. (TAB. XLII.) On the Rio Grande, from Doña Ana southward to San Elceario, and westward to the valley of the Gila. (No. 3191, *Berlandier.*) Our plant has usually broader leaves than those of Berlandier's specimens. Var. β: floribus lateralibus breviter pedicellatis; corollæ laciniis obtusis. E. Muhlenbergii, *Griseb. l. c.*, (quoad pl. Calif.) Dry soils around San Diego and in many other parts

of California. It begins to flower when scarcely an inch high, but at length, in good soil, attains the height of a foot or more. The flowers vary greatly in size, from less than an inch to an inch in diameter. They are of a bright rose color with a yellow centre. We refer here E. Muhlenbergii, *Benth. Pl. Hartw.*, apparently a mere dwarf, small-flowered state of the plant, which we have from several collectors. This species is known in California by the name of *Canchalagua*, a bitter tonic of considerable reputation; but E. tricantha is often confounded with it, and possesses similar virtues. The same name has long been applied to E. Chilensis. Gyrandra speciosa, *Benth. Bot. Sulph. p.* 127, *t.* 45, differs from this species chiefly in the shorter filaments, and in being more spreading. I have noticed at least in one species that the filaments increase in length after flowering, as do the tube of the corolla and the style. In authentic specimens of Berlandier, (whose plant is certainly annual, not as stated by Grisebach, perennial,) the stem is 4-angled, as in all the species of Erythræa. The genus Gyrandra seems to have no characters by which it can be distinguished from Erythræa. The segments of the calyx are somewhat carinate, but not winged as in some genuine Erythræa. The corolla is of the same form in both genera. The anthers of E. Centaurium, as well as of other species that I have examined, are as destitute of a connective as are those of Gyrandra.

Erythræa Texensis, *Griseb. Gent. p.* 139, *& in DC. Prodr. l. c., p.* 58. Rocky places on the Pecos; *Bigelow;* and along the Rio Grande; *Schott.* April—September.

Erythræa Beyrichii, *Torr. & Gray, Fl.* 2, *p.* —, (*ined.*;) *Torr. in Bot. Marcy's Rep. p.* 291, *t.* 13. E. tricantha, β angustifolia, *Griseb. in DC. l. c.* 60. Rocky banks of the Pecos and San Pedro; *Bigelow*, etc. Sabina creek, Texas; *Thurber.* (No. 1662, *Wright.*)

Erythræa tricantha, *Griseb. Gent. p.* 146, *and in DC. Prodr.* 9, *p.* 60; *Benth. Pl. Hartw. p.* 322. In various parts of California, especially near the coast. We have from Sir William Hooker specimens of this plant, collected by Douglas, which agree in all respects with ours. The lobes of the corolla are not "linear and very acute," but lanceolate and rather obtuse. Grisebach probably drew his description from specimens which were dried without pressure, so that the lobes of the corolla had become involute and apparently very narrow as well as acute. After a careful comparison of original specimens of E. tricantha and E. floribunda, (the California plant of *Benth. Pl. Hartweg,*) I have little doubt that they are forms of one species. E. floribunda differs only in the broader lobes of the corolla.

Gentiana detonsa, *Fries. Griseb. in DC. Prodr.* 9, *p.* 101; *Torr. Fl. N. York*, 2, *p.* 108, *t.* 82. Babacomori to Santa Cruz, in wet places, September; *Thurber.* (No. 1658, *Wright.*)

Gentiana affinis, *Griseb. in Hook. Fl. Bor.-Amer.* 2, *p.* 57. Hills and rocky places near the Copper Mines, August—October; *Bigelow.* (No. 1657, *Wright.*)

Gentiana quinqueflora, *Lam. Dict.* 2, *p.* 643; *Griseb. l. c.* Western Texas. No. 1659, *Wright.*

Eustoma Russelianum, *G. Don, Gen. Syst. Gard.* 4, *p.* 175; *Griseb. in DC. Prodr.* 9, *p.* 51. Valley of the Rio Grande, etc., in sandy soils; common, May—October; *Thurber.* On the Gila, Sonora; *Thurber.* (No. 1660, *Wright.*) Leaves varying from oblong and obtuse to narrowly lanceolate and acute. The flowers also vary greatly in size and in the proportionate length of the segments and tube of the corolla Perhaps not distinct from E. exaltatum.

Sabbatia campestris, *Nutt. in Trans. Amer. Phil. Soc.* (*n. ser.*) 5, *p.* 197. Prairies on the Guadalupe river, Texas, May—June; *Wright.* (No. 2568, *Berlandier.*)

APOCYNACEÆ.

Echites macrosiphon (n. sp.): caule erecto suffruticoso; ramis tomentosis; foliis ovatis acutis vel acutiusculis brevissime petiolatis basi obtusis vel subcordatis supra pubescentibus subtus albo-tomentosis; pedunculo terminali uni-(raro bi-) floro petiolo subduplo longiore; lobis calycinis lineari-lanceolatis; corollæ puberulæ tubo calyce 6–8-ies longiore versus apicem ventricoso, lobis obovatis. (Tab. XLIII.) Hills and dry rocky places along the Rio Grande, in Texas and Chihuahua, August—September. (Nos. 556, 557, and 1664, *Wright*.) Plant 1–3 feet high, often a little branching at the summit. Leaves $\frac{3}{4}$–$1\frac{1}{2}$ inch long, and $\frac{1}{2}$–1 inch wide, often obtuse, but usually with a short abrupt point, the petioles scarcely more than a line in length. Flowers of a spicy odor. Calyx with numerous (30–40) minute subulate glands on the inside surrounding the base of the corolla. Corolla white, tinged with rose externally; the tube 3–5 inches long, the upper part, for about an inch, 3 times the diameter of the lower portion, not constricted at the throat, pubescent inside below the insertion of the stamens. Nectary of 5 unequal obtuse compressed distinct glands, which are about half the length of the ovary. Follicles about 3 inches long, very slender and tapering to a long point. Seeds oblong-linear; testa wrinkled; the coma at each end longer than the body of the seed. Very much resembles E. hypoleuca, *Benth.*; but that has longer peduncles, a velvety-pubescent corolla, the tube of which is only twice the length of the lobes and dilated about one-half its length as well as constricted at the orifice; also two of the glands of the nectary are connate.

Echites brachysiphon (n. sp.): caule erecto suffruticoso, ramis puberulis; foliis oblongis ovatisve acutis utrinque pubescentibus subconcoloribus brevi-petiolatis; pedunculis terminalibus unifloris petiolo 5-plo longioribus; lobis calycinis oblongis; corollæ tubo calyce 4-plo longiore supra medium subventricoso, lobis obovatis. Arroyo de los Janos and San Bernardino, Sonora; *Schott*, *Thurber*. (No. 1665, *Wright*.) Plant from a span to a foot high, more spreading than the preceding. Leaves about an inch long, sometimes smaller and oblong-lanceolate, the lower ones often obtuse, not white on the under side. Peduncles $\frac{3}{4}$ of an inch long. Calyx $2\frac{1}{2}$ lines long, with about 20 minute subulate glands at the base. Corolla white; the tube an inch and a quarter long, the lower half much contracted. Nectary with two of the glands united into one. This species also is related to E. hypoleuca, but that differs in the under part of the leaves being clothed with a dense white tomentum, and the segments of the calyx are much narrower as well as longer.

Apocynum cannabinum, *Linn. Sp. p.* 311; *Alph. DC. Prodr.* 8, *p.* 439. Western Texas, Sonora, and California. Broad and narrow leaved forms occur in all these places.

Amsonia tomentosa, *Torr. & Frém. in Frém.* 2*d Rep. p.* 316. Sandy plains and ravines, borders of the Rio Grande, Chihuahua, Sonora, &c., April—May. Stems about a foot and a half high, several springing from a woody base. Leaves varying in breadth from linear to lanceolate, clothed with a short dense and more or less hoary pubescence. Flower about as large as in A. Tabernæmontana, *Walt.* Pods 2–3 inches long and 2 lines in diameter, cylindrical, erect. A variety, or perhaps distinct species, occurs at Laguna Santa Maria, Chihuahua. It is glabrous; the flowers are considerably smaller, with the sepals glabrous and nearly as long as the tube of the corolla. In A. tomentosa the sepals are hairy and scarcely half as long as the tube of the corolla. A Tabernæmontana differs in the very short lanceolate sepals, which are scarcely one-fourth the length of the tube of the corolla.

Amsonia Tabernæmontana, *Walt. Fl. Car. p.* 98; *Decaisne in DC. Prodr.* 8, *p.* 385. A. ciliata, *Walt. l. c.; Decaisne, l. c.* A. latifolia, *Michx. Fl.* 1, *p.* 121. A. angustifolia, *Michx. l. c.* A. salicifolia, *Pursh, Fl.* 1, *p.* 184. A. tristis, *J. E. Smith in Rees' Cycl.* Hills near the Blanco river, Texas; *Wright.* A nearly glabrous variety.

Amsonia longiflora (n. sp.): glabra; caule erecto e basi lignoso ramosissimo; foliis lineari-lanceolatis vel linearibus; corollæ tubo gracili elongato (1½ unc. longo) superne subventricoso: sepalis lanceolato-subulatis. Rocky ravines near El Paso, April—May. (No. 1668, *Wright.*) Plant 1–2 feet high. Leaves 1½–2 inches long, and from less than a line to 2½ lines wide. Corolla blue; lobes of the limb about one-fourth the length of the tube. Pods as in the two preceding species. No. 1671 Wright is a variety with very narrow leaves, which are scabrous with short hairs on the margin.

Haplophyton cimicidum, *Decaisne in DC. Prodr.* 8, *p.* 412? In crevices of rocks, Magdalena, Sonora; *Thurber, Schott.* (No. 1666, *Wright.*) Stems several from a woody base, 1–2 feet high, minutely pubescent. Leaves 1–1½ inch long, and 2½–4 lines wide, opposite or alternate, scabrous with short rigid hairs, which stand on a swollen crustaceous base. Flowers terminal solitary or 2–3 in a cymule. Calyx ⅓ the length of the corolla-tube; no traces of glands. Corolla sulphur-yellow, somewhat salverform; the tube shorter than the obovate lobes. Stamens united about middle of the tube of the corolla; anthers oblong, rather acute, rather longer than the free portion of the filaments. Ovaries oblong, distinct, each 7–8-ovuled; style rather stout. Stigma oblong-capitate, entire. Pods 2 inches long, very slender, tapering to a long narrow point. Seeds oblong-linear, the testa wrinkled, each extremity furnished with a coma of white hairs, which are longer than the body of the seed. This genus was founded on a Mexican plant; and part of the character, especially what relates to the seed, is drawn from an unpublished figure of Mocino and Sesse. Notwithstanding the seed is said to be hairy only at the upper extremity, I strongly suspect that the coma of the lower end had become detached, as it is very deciduous. Our plant agrees in every respect with H. cimicidum, except that the latter is said to have leaves 2–2½ inches long and 8–10 lines wide.

ASCLEPIADACEÆ.

Metastelma barbigerum, *Scheele in Linnæa,* 21, *p.* 760. Hill sides and thickets, borders of the Rio Grande, from New Mexico to Eagle Pass, June—September. Near Monterey, Neuvo Leon, *Dr. Edwards.* (No. 549 and 1676, *Wright.* No. 2172 and 3198, *Berlandier.*) Dr. Gregg collected it in Neuvo Leon, west of Cerralbo. We have what appears to be M. Schlechtendalii, *Dne,* collected in Key West, Florida, by the late Mr. Blodgett.

Metastelma? angustifolia (n. sp.): glabrata; caule prostrato vix volubili; foliis anguste-linearibus acutis basi in petiolem brevem attenuatis; floribus plerumque solitariis axillaribus oppositis breve pedicellatis; corollæ laciniis lineari-lanceolatis acutissimis apice recurvis introrsum infra medium retrorsim pilosis; coronæ stam. foliolis oblongo-spathulatis erectis integris gynostegio constricto subæqualibus; stigmate longe rostrato.—Sides of ravines, Santa Cruz, Sonora; *Wright,* No. 1677. Stem 1–3 feet long, slender, with a somewhat ligneous base. Leaves 1–1½ inch long and one line wide. Flowers purplish, 2 lines long, on pedicels of the same length. Calyx deeply 5-parted, the segments narrowly lanceolate. Corolla subcampanulate, the long segments recurved above the middle. Horny margins of the anthers angularly projecting; the membranaceous summit elongated, erect, oblong. Stigma with a cylindrical

beak, which is somewhat longer than the erect anther-membrane. Pods not seen. We refer this plant to Metastelma with much doubt, but there is no other genus to which it seems to be more allied. It occurs also in Lindheimer's Texan Collection.

ROULINIA UNIFARIA, *Engelm. MSS.* Gonolobus unifarius, *Scheele in Linnæa*, 21, *p.* 760. Shady thickets, near the Rio Grande, western Texas and New Mexico, July—October; *Schott, Bigelow.* (Nos. 546 and 1672, *Wright.*) I fear that it is too near *R. Jacquini.*

ACERATES VIRIDIFLORA, *Ell. Sk.* 1, *p.* 317; *Decaisne in DC. Prodr.* 8, *p.* 522. Asclepias viridiflora, *Pursh, Fl.* 1, *p.* 181. Western Texas; *Bigelow.* No. 1693, *Wright*, is a variety with broadly obovate and emarginate leaves. In my Flora of the Northern and Middle States (2, *p.* 182) I incorrectly referred Asclepias obovata, *Ell.*, to this variety; a mistake which has been copied by Decaisne. Elliott's plant is a genuine Asclepias; but A. obtusifolia β, *Torr.*, also referred by Decaisne to A. obovata, is our A. Jamesii, described below.

ACERATES DECUMBENS, *Decaisne, l. c.* Anantherix decumbens, *Nutt. l. c. p.* 202. Valley of the upper Rio Grande and westward to the Gila river, April—August.

ACERATES AURICULATA (*Engelm. MSS.*): "caule erecto glabro; foliis sparsis linearibus filiformibus; umbellis pluribus axillaribus multiflorus breviter pedunculatis; pedicellis pilosis, calyce extus villoso; corollæ laciniis reflexis; cucullis gynostegio globoso sessili brevioribus apice leviter tridentatis margine involutis basi latissime biauriculatis; folliculis lanceolatis longe rostratis brevibus." Dry ravines near the Copper Mines, and along the Mimbres, June—July; *Bigelow.* Stem 2–3 feet high, somewhat glaucous. Leaves slightly scabrous on the margin, which is not revolute, 4–6 inches long, $\frac{1}{3}$–$\frac{1}{2}$ line (rarely as much as a line) wide. Pedicels 6 lines long. Lobes of the corolla $2\frac{1}{2}$ lines long. Horny wings of the anthers rounded, not angular as in most Asclepiadeæ. Pollen-masses also, of an unusual shape, curved, nearly equally wide, and obtuse at each end: remarkable, also, for the large triangular wings at the sides of the hoods. Pods 3 or 4 inches long. Resembling A. angustifolia, but easily distinguished by the perfectly smooth stem and non-revolute leaves, but especially by the larger flower, the peculiar structure of the cuculli, and the shape of the pollen-masses. This is No. 706 of Fendler's New Mexican Collection, and No. 1687 of Wright's. It was found also by Frémont on the upper Arkansas. Doubtless it has often been confounded with A. angustifolia.

ACERATES (ANANTHERIX) TOMENTOSA (n. sp.): albo-lanata; caule erecto simplici; foliis ovatis acutis sessilibus basi rotundatis v. cordato-amplexicaulibus; umbellis sessilibus plurifloris; gynostegio sessili; cucullis suborbicularis saccatis apertis lateraliter compressis. (TAB. XLIV.) Mountains east of San Diego, California, June; *Parry.* San Isabel, in the same State; *Thurber.* We have also specimens collected by the Rev. Mr. Fitch, in some part of California. Stem 2–3 feet high. Lower leaves 4–5 inches long, and nearly 3 inches wide, usually clasping at the base. Umbels 3–4, in the axils of the upper leaves, 8–12-flowered; pedicels 1–$1\frac{1}{2}$ inch long, very densely clothed with white wool. Flowers a third larger than in Asclepias Cornuti, "of a chocolate-purple color." (*Parry.*) Petals ovate, reflexed, woolly externally. Hoods of the crown nearly orbicular, spreading, without any trace of a spur, the margin of the orifice entire and introflexed. The horny wings of the anthers almost rectangular at the base. Follicles oblong-lanceolate, downy. This is a remarkable species, belonging rather to the subgenus Anantherix than to Acerates proper.

SARCOSTEMMA BILOBUM, *Hook. & Arn. Bot. Beechey, p.* 317. S. cynanchoides, *Decaisne, l. c. p.* 540. S. Texanum, *Engelm. MSS.* Gonolobus cynanchoides, *Engelm. & Gray, Pl. Lindh.* 1, *p.* 43. Borders of the Rio Grande, from Presidio del Norte to Eagle Pass, June—October;

Parry, Schott. Valley of the Limpia; *Bigelow.* Sonora; *Thurber.* (No. 1680, *Wright.* No. 904, 1951, and 2334, *Berlandier.*) This slender vine climbs trees to the height of 30 or 40 feet, or trails over shrubs and other plants. The flowers have an agreeable odor. I strongly suspect this to be the Gonolobus viridiflorus, *Nutt.* (not of *Roem. & Schult.*) It is certainly the plant so named in my account of the plants collected by Dr. James in Long's Expedition, and, I think it was so regarded by Mr. Nuttall, who cursorily examined those plants in my herbarium.

SARCOSTEMMA ELEGANS, *Decaisne, l. c. p.* 541? Rocky places, Presidio del Norte, July—August; *Parry.* Camp Bache, and on the Cibolo of the Rio Grande; *Bigelow.* Our plant accords with the description of Decaisne, but it may be a distinct species. It differs from the last in the strongly pubescent stem and leaves; the flowers twice as large, and the segments of the corolla oblong and obtuse, with a reticulate venation; whereas in S. cynanchoides the divisions of the corolla are ovate and acute, with several parallel longitudinal veins. The follicles are pubescent, about 4 inches long, half an inch wide in the middle, and tapering to a long point.

SARCOSTEMMA UNDULATUM (n. sp.): volubile, glabratum; foliis lineari-lanceolatis acutis basi subauriculato-cordatis margine undulato-crispatis; pedunculis petiolo 2–3-plo longioribus plurifloris; corona staminea exteriore pelviformi integerrima, interiore foliolis ovatis obtusis gynostegio brevioribus. Mountains east of the Rio Grande, 70 miles below El Paso, June; *Parry.* Copper Mines, New Mexico; *Bigelow.* (No. 1678, *Wright.*) Stem 2–3 feet long, twining, or sometimes prostrate. Leaves 2–4 inches long, and 5–8 lines wide in the middle; tapering to a long point, usually dilated and auriculate-cordate or somewhat hastate at the base; the mid-rib often whitish on both surfaces; the margin more or less undulate or crisped; petioles about half an inch long. Umbel 8–10-flowered. Peduncles 1–1½ inch long, and the pedicels about the same length. Flowers half an inch in diameter. Segments of the calyx linear-lanceolate. Corolla rotate, purple, smooth internally and externally, the margin ciliolate; segments oblong, obtuse. Gynostegium nearly sessile. Pods 3 inches long, 4 lines in diameter, tapering at each end, slightly pubescent. Resembles S. crispum, *Benth.*, but that is a humbles pecies, (only half a foot long,) the peduncles barely equal the petioles, and the exterior stamineal crown is annular; while in our plant it forms a distinct cup.

SARCOSTEMMA HETEROPHYLLUM (*Engelm. MSS.; Torr. in Pacif. Railroad Rep.* 5, *p.* 363): puberula, volubile; foliis anguste-linearibus brevi-petiolatis acutis basi cordatis v. cordato-hastatis (raro) acutiusculis; pedunculis plurifloris petiolo multo longioribus; corollæ laciniis patulis ovatis acutis ciliatis extrorsum puberulis introrsum glabris (purpurascentibus;) corona stam. exteriore pateriformi integra, inter. foliolis suborbiculatis gynostegium subæquantibus; folliculis longe attenuatis. Ravines and rocky places, borders of the Rio Grande, western Texas, New Mexico, and Chihuahua, westward to Sonora and San Luis Rey, California, April—June. (No. 1681, *Wright.*) Stems numerous, from a somewhat ligneous base, 1–3 feet long, slender. Leaves 1–2 inches long, ½–2½ lines wide, the lower and middle ones more or less cordate, or cordate-sagittate at the base, the lobes entire or denticulate; uppermost leaves sometimes acute at each end; petioles 2–4 lines long. Peduncles 1–2 inches long; umbel 8–12-flowered, the pedicels much shorter than the peduncles. Flower about one-third of an inch in diameter; exterior corona in the form of a shallow cup. Gynostegium nearly sessile. Corolla brownish purple. Near S. lineare, *Benth.**

* We have Sarcostemma clausum, *Roem. & Schult.*, from Key West, where it was found by the late Mr. Blodgett.

SARCOSTEMMA HETEROPHYLLUM; var.? umbellis 5–8-floris, pedicellis pedunculo subæqualibus; floribus majoribus; corollæ laciniis oblongis obtusis. Gravelly hills, Rock Creek, and near Camp Bache, also at the mouth of the Great Cañon of the Rio Grande, June—July. (No. 1679, *Wright.*) Perhaps distinct from S. heterophyllum: we have seen no intermediate forms. The leaves are usually longer and wider; the flowers are of a dull purple color, and the segments of the corolla are more strongly ciliate. Gynostegium distinctly stipitate. Follicles 4 inches long, acute at the base, and tapering to a long point.

ASCLEPIAS SULLIVANTII, *Engelm. in Gray's Manual, ed.* 2, *p.* 352. Hill-sides, Muerte and Rock Creek; also at the Copper Mines, July—August; *Bigelow.* The pods are sometimes almost entirely free from warts or spines. Leaves often very obtuse, or even emarginate.

ASCLEPIAS JAMESII (n. sp.): glaberrima, subglauca; foliis orbiculato-obovatis subcoriaceis retusis vel emarginatis basi cordatis brevissime petiolatis; umbellis multifloris brevi-pedunculatis; gynostegio constricto; cucullis dilatatis truncatis; processu arcuato falciformi acutissimo exserto; folliculis ovatis lævibus. A. obtusifolia var.? latifolia, *Torr. in Ann. Lyc.* 2, *p.* 117. Plains near the Limpio Mountains, July; *Bigelow.* Tascate, Sonora, July; *Parry.* (No. 1682, *Wright.*) Stem stout, 1–2 feet high. Leaves 3–4 inches long, and 2½–3½ wide, somewhat coriaceous, transversely and reticulately veined, mostly retuse or emarginate, with a small abrupt point; the lower ones almost orbicular; petiole 1–3 lines long. Umbels several, in the axils of the upper leaves. Peduncles 2–4 lines long. Flowers much resembling those of A. Sullivantii. Corolla greenish; segments broadly ovate. Hoods of the crown purplish, very broad, obliquely truncated, the horn with the acute point exserted and projected partly over the stigma, the upper margin undulately 2–3-toothed. Horny margins of the anthers angularly dilated at the base. This species was first discovered by Dr. James, on Long's Expedition to the Rocky Mountains, and was doubtfully regarded as a variety of A. obtusa in my account of the plants collected by that botanist. It was afterwards found by Lieut. Abert, as well as by Fendler, in New Mexico.

ASCLEPIAS EROSA (n. sp.): puberula deinde glabrata; caule erecto simplici; foliis oblongo-ovatis subcoriaceis acuminatis sessilibus margine eroso-denticulatis; umbellis multifloris; pendunculis folio duplo brevioribus; cucullis obovatis obtusis longioribus; gynostegio constricto, processu subulato arcuato longe horizontaliter exserto; folliculis ovatis, acuminatis lævibus.—Valley of the Gila river, near Metate, May—June; *Schott, Thurber.* Stem apparently 2–3 feet high, stout. Lower leaves 5–7 inches long, and 2½ broad, with a long acute point, very rough on the margin, with irregular conspicuous cartilaginous serratures. Umbels 5 to 7, about half as long as the leaves; pedicels 1½ inch long, pubescent. Flowers as large as in A. Cornuti. Corolla greenish white; segments at length reflexed. Hoods of the crown obliquely truncate at the summit, the subulate horn exserted horizontally. Pods (immature) about 2 inches long, and nearly an inch in diameter at the middle.—Apparently allied to A. glaucescens, *H. B. & K.*, but that species has obtuse leaves, much shorter pedicels, and a subsessile gynostegium, which is about the length of the hoods.

ASCLEPIAS ARENARIA (n. sp.): incano-pubescens, deinde glabrescens; caule simplici; foliis oppositis obovatis vel inferioribus ovatis breviter petiolatis, superioribus emarginatis vel retusis; pedunculis brevibus multifloris, cucullis dilatatis obtusissimis utrinque unidentatis gynostegio subsessili longioribus, processu subulato apice subrecurvo; folliculis oblongis attenuatis lævibus.—Sandy banks; Journado del Muerte, and on the upper Rio Grande, in New Mexico, June—July. Plant 12–18 inches high, (apparently sometimes assurgent or prostrate.) Leaves

$2\frac{1}{2}$–4 inches long, and $1\frac{1}{2}$–$2\frac{1}{2}$ inches wide, when old nearly glabrous and somewhat coriaceous; petioles 2–3 lines long. Peduncles scarcely an inch long. Umbels several, in the axils of the upper leaves, 15–25-flowered. Corolla greenish white; hoods dull pale purple. Follicles 4 inches long, and an inch in diameter in the middle, attenuated to a long point. Allied to A. Jamesii.

Asclepias nummularia (n. sp.): caule humili; foliis oppositis orbiculatis albo-lanatis; pedunculis folio longioribus; cucullis ovatis gynostegio sessili subduplo longioribus, processu falcato vix exserto. (Table XLV, A.) Copper Mines, New Mexico, April; *Bigelow*, *Thurber*. Santa Maria, Chihuahua; *Parry*. Santa Cruz, Sonora; *Capt. E. K. Smith*.—Stems several from a thick ligneous root-stock, 1–2 inches long. Leaves in 2 or 3 closely approximated pairs, 1–$1\frac{1}{2}$ inches in length and breadth, with a very short abrupt acumination, often slightly cordate at the base, clothed with a softly white pubescence. Peduncles 2 or $2\frac{1}{2}$ inches long; umbel 15–20-flowered, the pedicels about three-fourths of an inch long. Corolla greenish white; the segments oblong and reflexed. Hoods obliquely truncate inward, entire, somewhat spreading. Projecting margins of the anthers rounded. Pollen-masses triangular. Immature pods ovate, tomentose.—A remarkable species; very distinct from any other of the genus. It has much the habit of Steinheilia radians, as represented in *Deless. Ic.* 5, *t.* 61.

Asclepias involucrata (*Engelm. MSS.*): caulibus e basi lignoso brevi pluribus; foliis oppositis alternisve lineari-lanceolatis brevi-petiolatis margine tomentosis; umbellis terminalibus sessilibus foliis 2–4 involucratis; cucullis ovatis acutiusculis patentibus gynostegio subduplo longioribus; processu cultriformi vix exserto; folliculis ovato-oblongis lævibus.—Sandy soils, on the Mimbres and near the Copper Mines; also sandy plains between Laguna de Guzman and the Rio Grande; April—May; *Bigelow*, *Thurber*. San Luis mountain, Sonora; *Capt. E. K. Smith*. (No. 1690, *Wright*. No. 107, *Fendler*.) Stems 3–6 inches long, erect or spreading, somewhat pubescent. Leaves $1\frac{1}{2}$–$2\frac{1}{2}$ inches long, opposite and alternate, mucronate, nearly smooth above, except on the margin, a little pubescent on the veins underneath. Umbel 10–15-flowered, involucrate, with 1–2 pairs of leaves similar to those of the stem. Pedicels about three-fourths of an inch long. Corolla greenish white, the segments ovate and reflexed. Hoods spreading, and their points often a little recurved. Margin of the anthers projecting and acutely angular at the base. Pollen-masses pyriform. Pod $2\frac{1}{2}$ inches long, and $\frac{3}{4}$ inch in diameter, acute, but scarcely attenuated at the summit.

Asclepias brachystephana (*Engelm. MSS.*): caule ramoso; foliis oppositis lineari-lanceolatis longe angustatis basi in petiolum brevem attenuatis glabratis; umbellis pluribus extra-axillaribus pedunculatis plurifloris; cucullis truncatis antice bidentatis gynostegio sessili dimidio brevioribus, processu falciformi verticali; folliculis oblongis lævibus.—Sandy soils, Valley of the upper Rio Grande, Chihuahua, and Sonora; April—July. (No. 1692, *Wright*.) Dr Gregg found it in dry valleys west of Saltillo. Stem 8–12 inches long, branching from the base upward. Leaves 3–6 inches long, gradually tapering from a rather broad base to a long narrow point; petiole 2–3 lines long. Umbels 3–8 on each branch, the peduncles much shorter than the pedicels. Corolla dull purple, the segments ovate-oblong, reflexed. Cuculli broader than long, the inner margin produced into a tooth above. Margins of the anthers angular at the base. Pollen-masses pyriform. Pods 2 inches long, acuminate.

Asclepias incarnata, *Linn. Sp. p.* 314; *Decaisne, l. c. p.* 567. Copper Mines, New Mexico, July; *Bigelow*. Var. foliis lato-linearibus vix puberulis. Banks of Devil's river, western Texas, September; *Bigelow*. Lower Rio Grande; *Schott*, *Wright*.

ASCLEPIAS TUBEROSA, *Linn. Sp. p.* 316; *Decaisne, l. c.* Western Texas, New Mexico and Sonora, June—July.

ASCLEPIAS PARVIFLORA, *Willd. Sp.* 1, *p.* 1267? Ravines head of Rock Creek, western Texas, July; *Bigelow.* (No. 1684, *Wright.*) Many years ago, Prof. L. K. Gibbes, in his Catalogue of the Plants of Columbia, South Carolina, (*p.* 11,) showed that the seeds of this species (at least in his specimens) "want the usual comose appendage of the genus!" I have verified his observation in specimens from various parts of the southern States. In Dr. Bigelow's plant the seeds are crowned with a tuft of hairs, and yet I cannot find that it differs in any other respects from the common A. parviflora, except that the flowers are about one-third larger.

ASCLEPIAS VERTICILLATA, *Linn. Sp. p.* 315; *Decaisne, l. c.* A. linearis, *Scheele in Linnæa,* 21, *p.* 758. Plains between Van Horne's Wells and Muerte, July; *Bigelow.* Guadalupe river, Texas; *Schott.*

Var. GALIOIDES, *Decaisne, l. c.* A. galioides, *H B. K.* Near San Elceario, May; *Parry.* New Mexico and Sonora; common. (No. 1685, 1686 and 1689, *Wright.*) Our plant seems to be the same as Hartweg's No. 216.

ASCLEPIAS FASCICULARIS, *Decaisne, l. c. p.* 569. A. macrophylla, *Nutt. Pl. Gamb. in Journ. Acad. Sc. Philad.* (*n. ser.*) 1, *p.* 180. Grassy places near San Luis Rey, California, October, (in fruit); *Parry.* Variable in the breadth of the leaves.

ASCLEPIAS LINARIA, *Cav. Ic.* 1, *p.* 42, *t.* 57, *ex Decaisne, l. c. p.* 570. Sierra de Pajarito, Yanos, Sonora, May; *Schott.* Between Saltillo and San Luis Potosi; *Berlandier* (No. 1350) & *Gregg* (No. 562.)

ASCLEPIAS MACROTIS (n. sp.): nana, suffruticosa; caule ramosissimo; ramulis rigidis unifariam puberulis; foliis oppositis anguste linearibus glabris mucronatis; pedunculis brevibus extra-axillaribus paucifloris; cucullis longissime lineari-attenuatis patulis margine pubescentibus; processu obtuso vix exserto; gynostegio sessili brevissimo. (TAB. XLV, B.) Rocky hills near El Paso, and on the mountains below San Elceario, May—June; *Bigelow, Parry.* (No. 1691, *Wright.*) Stem about a span high intricately branched from the thick crooked base, which is somewhat ligneous, the branches terete. Leaves 1–1½ inch long and half a line wide, revolute on the margin. Umbels 4–5-flowered. Peduncles 2–3 lines long; pedicels 4–5 lines. Segments of the calyx lanceolate. Corolla pale purple; the segments ovate and reflexed. Hoods with an ovate base, their elongated tapering extremities diverging horizontally; the horn slightly curved, short and obtuse, pubescent near the summit. Gynostegium very short, closely sessile, anthers broader than long, with narrow cartilaginous margins. Pollen-masses elongated pyriform. Pods oblong, lanceolate, acuminate, even. This very remarkable species has been found only in the places mentioned above. It has much the appearance of Gomphocarpus revolutus of South Africa.

ASCLEPIAS (OTARIA) LONGICORNU, *Benth. Pl. Hartw. p.* 24; *Decaisne, l. c. p.* 570. A. Lindheimeri, *Engelm. & Gray, Pl. Lindh.* 1, *p.* 42, (*No.* 272.) Plains and rocky places, New Mexico and western Texas, along the middle and lower Rio Grande, June—September. Borders of Aqua Fria river, Mexico; *Gregg.* (No. 1683, *Wright.*)

ASCLEPIAS SUBULATA, *Decaisne, l. c. p.* 571; *Torr. in Pacific R. Road Expl.* 6, *p.* 362, *t.* 7. Lower California, near the Mexican boundary line; *Parry.* Ravines and hills sides of the desert, near Fort Yuma, June; *Schott.*

SEUTERA MARITIMA, *Decaisne in DC. Prodr.* 8, *p.* 590. Cynanchum angustifolium, *Pers. Syn.* 1, *p.* 274; *Nutt. Gen.* 1, *p.* 164. Saline marshes near the sea coast, western Texas; *Wright.*

GONOLOBUS GRANULATUS (*Scheele in Linnæa* 21, *p.* 759.): volubilis pilis patentibus vel reversis hirsutus; foliis longius petiolatis ovatis acuminatis profunde cordatis; pedunculo petiolum superante; umbellis paucifloris; corollæ laciniis ovatis obtusis reticulato-venosis extus pilosiusculis, intus glabris; corona stam. annuliformi; gynostegio substipitato applanato; antherarum cuspidibus tenuissimis inflexis; stigmate nudo: folliculis lanceolatis sparsim echinatis glabris. Mountain ravines, near Live Oak Creek, September; *Bigelow*. Sonora: *Schott*. Monterey, Neuvo Leon; *Dr. Edwards and Major Eaton*. (No. 543 and 1674, *Wright*. *No.* 350 *Lindheimer's Texan Coll.* 1846.) Stem herbaceous, twining over shrubs and small trees. Leaves varying from 2–3½ inches long, and 1½–2½ inches wide, slightly pubescent on both sides; the petiole 8–10 lines long. Peduncles usually about one-fourth longer than the petioles. Umbel (or rather very short raceme) 4–8-flowered: the longer pedicels about an inch in length. Flowers 5 or 6 lines in diameter. Calyx hairy; the segments lanceolate. Corolla rotate, greenish or purplish, with darker reticulated veins. Stamineal crown reduced to a narrow ring. Anthers with the membranous appendage very thin and inflexed under, not lying on the stigma. Pollen-masses obliquely obovate. Stigma obtusely 5-angled, flat. Follicles 4½ or 5 inches long and about ¾ inch in diameter, armed with distant, subulate, rather firm prickles.

LACHNOSTOMA? PARVIFLORA (n. sp.): humifusum, pilosum; foliis ovatis vel orbiculato-ovatis acutis brevi-petiolatis; pedunculis folio multo-longioribus; floribus primo umbellatis deinde racemosis; corolla rotata, laciniis ovatis; coronæ stam. phyllis 10 biseriatis, 5 exterioribus alte bifidis laciniis acuminatis, 5 interioribus subulatis utrisque gynostegio longioribus; folliculis ovato-oblongis spinis innocuis villosis dense onustis. San Pedro Creek, western Texas; *Wright*, (No. 1673.) Table-land between Ringgold Barracks and Laredo, on the lower Rio Grande, June—July; *Schott*. Root tuberous. Stem clothed with a gray spreading pubescence, branching from the base; the branches 8–12 inches long. Leaves varying narrowly to broadly ovate, about three-fourths of an inch long, usually waved and often crisped on the margin. Peduncles axillary and subterminal, at first only a little longer than the leaves, but in fruit twice or thrice longer. Umbels or racemes 5–10-flowered. Corolla about 2½ lines in diameter, purplish. Stamineal crown consisting of 10 distinct leaflets in a double series; the 5 exterior cleft about halfway down, the points curved over the stigma; the 5 interior subulate, arising from the base of the exterior leaflets, which they considerably exceed in length, and are likewise curved over the stigma. Gynostegium sessile. Pollen-masses nearly orbicular. Pods 2–3 inches long, densely covered with short thick rather fleshy processes. This plant can scarcely be referred to any of Decaisne's genera, but I am unwilling to propose a new genus for its reception while my knowledge of the Mexican Asclepiadaceæ is so imperfect.

GONOLOBUS BIFLORUS, *Nutt.* Chthamalia biflora, *Decaisne in DC. Prodr.* 8, *p.* 605. Dry prairies, western Texas; *Wright*, (No. 543.) New Braunfels, *Lindheimer*, (No. 162.) Stems prostrate, 1–2 feet long, not twining. Flowers dark purple. Lobes of the stamineal crown with an internal ridge which is produced into an inflexed curved process. Follicles 3–4 inches long, echinate with soft prickles. C. pubiflora, *Decaisne, l. c.*, is Gonolobus prostratus of Elliott, but not of R. Brown.

GONOLOBUS (CHTHAMALIA) CYNANCHOIDES, *Engelm. & Gray, Pl. Lindh. pars 1, p.* 43. Western Texas, *Wright*. Nearly related to the last, but differs in the smaller flowers, and in the short excavated process of the lobes of the corona. (No. 545, *Wright*. No. 1951, *Berlandier*.)

GONOLOBUS (CHTHAMALIA) PRODUCTUS (n. sp.): caule volubili pubescente; foliis ovatis longe

acuminatis cordatis, auriculis approximatis rotundatis puberulis; pedunculis petiolis subæqualibus 3–5-floris; corolla campanulata, tubo brevi, laciniis lanceolatis erectis; corona stam. cupuliformi crenato gynostegio breviore; folliculis (immaturis) lævibus. Climbing over bushes. Banks of Rock Creek; *Bigelow*. Valley of the Limpio, and along the Rio Grande, June; *Parry*, (No. 1675, *Wright*.) It was also found by Dr. Gregg, in Cadena, Mexico. Plant 2–4 feet long, twining around low bushes or trailing on the ground. Lower leaves about 2 inches long; the deep sinus at the base often almost closed by the approximation of the auricles. Sepals ovate–lanceolate, with a minute gland on the inside of each sinus. Corolla about 4 lines long, mostly of a dull purple color, but sometimes greenish. Stamineal crown a shallow cup, about two-thirds the length of the gynostegium, with the margin crenate or slightly lobed. On the inside are 5 adnate processes which are connected with the gynostegium and outwards terminate in a short tooth which is not exserted. Stigma obtusely 5 angled. Pollen-masses short and roundish. There are no ripe pods in the collections.

Gonolobus(?) parvifolius (n. sp.): pubescens; caule prostrato ramosissimo vix volubili; foliis (semiuncialibus) deltoideo-ovatis basi cordatis crassiusculis; floribus axillaribus solitariis vel geminis sessilibus; corolla urceolato-rotata ad mediam usque 5-lobata; corona stam. 5–loba, lobis ovatis obtusis gynostegio brevioribus; folliculis lineari-lanceolatis longe attenuatis lævibus. Sides of hills, cañon of the Rio Grande, below Mt. Carmel, October; *Parry*. Mountain near the Limpia, western Texas; *Wright*. Stem 12–18 inches long, the upper branches somewhat twining. Leaves 4–6 lines long, deltoid or sometimes hastate-cordate, rather acute, mucronate; petioles half as long as the lamina. Flowers on short axillary pedicels. Corolla about 2½ lines in diameter, dull yellow, (brown when dry;) the lobes triangular-ovate. Stamineal crown 5-lobed, the lobes obtuse or slightly emarginate, concave, with a prominent ridge on the inside. Stigma obtusely 5-angled, flat. Pods 3½ inches long, tapering to a long slender point.

OLEACEÆ.

Fraxinus Scheideana, *Schlecht. & Cham. in Linnæa*, 6, *p*. 391; *DC. Prodr.* 8, *p*. 278. Var. parvifolia: foliolis 1–3-jugis vix uncialibus. Rocky places in limestone districts on the Rio Grande, from the San Pedro to the Pecos; *Schott*. Mountains of Santa Rosa, Cohahuila; *Bigelow, Parry*. A graceful shrub 5 or 6 feet high.

Fraxinus viridis, *Michx. f. Sylv.* 2, *p*. 197, *t*. 120. Var. Berlandieriana. F. Berlandieriana, *DC. l. c.* Near Eagle Pass on the Rio Grande; *Bigelow*. (No. 602 and 2112, *Berlandier*. No. 653 (Coll. 1846) and No. 41, (Coll. 1847,) *Lindheimer*.) Leaflets 5–7, or often 3, mostly cuneate at the base, shining on the upper surface; the teeth larger and more salient than in the F. viridis of the Middle States; the fruit also is more acute.

Fraxinus pistaciæfolia, *Torr. in Bot. Whippl. Rep. p*. 128. F. velutina, *Torr. in Emory, Rep. p*. 149. On the Rio Grande and its tributaries. Near the Copper Mines, New Mexico; *Bigelow*. (No. 1697, *Wright*.) Ojito, Mexico; *Gregg*. Sonora; *Schott*. A downy variety, with narrowly lanceolate attenuate leaves, was found by Mr. Thurber at Guadalupe Cañon, Chihuahua. This species often grows from 15–20 feet high. Sometimes it attains the height of 30 feet. The fruit is often 3-winged.

Fraxinus cuspidata (n. sp.): foliolis 2–3-jugis lanceolatis vel oblongo-lanceolatis acutis cuspidatis serratis vel integerrimis utrinque glabris longe petiolulatis; samaris oblongis utrinque obtusis. Eagle Mountains and Great Cañon of the Rio Grande; *Parry, Bigelow*. (No. 1698,

Wright,) (mixed in my set with F. pistaciæfolia.) A well characterized species, easily known by the small fruit (scarcely 8 lines long,) which is broad in proportion and not contracted at the base. The leaflets are narrower and entire in Mr. Wright's specimen, while in Dr. Parry's they are broader and mostly serrate.

FRAXINUS DIPETALA, *Hook. & Arn. Bot. Beech. p.* 362, *t.* 87. Var.? TRIFOLIOLATA: foliolis unijugis ovatis vel obovatis integerrimis aut versus apicem crenato-serratis basi in petiolulum attenuatis; samaris lineari-oblongis emarginatis. Sterile mountains a few miles south of the Mexican boundary line, in Lower California, July (in fruit); *Parry*. A shrub or small tree growing in clumps, sometimes 20 feet high, with a trunk three inches in diameter. Leaflets never more than a single pair and a terminal one: sometimes, indeed, reduced to the single terminal one; the largest scarcely more than an inch long; common petiole channelled above. Flowers not known. Fruit in a loose cymose panicle, about three-fourths of an inch long, and $2\frac{1}{4}$ lines wide, (in one specimen 3 lines wide,) only a little contracted at the base. As the flowers of this ash are unknown, and the fruit of F. dipetala has not yet been seen, it remains uncertain whether they are distinct, or are only extreme forms of one species.

FORESTIERA PHILLYREOIDES. Piptolepis phillyreoides, *Benth. Pl. Hartw. p.* 29. Var. SPATHULAEFOLIA: foliis spathulatis subcoriaceis. Near Monterey, Neuvo Leon and plains west of San Pablo; *Gregg*. A shrub about 5 feet high. Not yet found in fruit. There can be no doubt of the identity of Piptolepis and Forestiera. The flowers of both agree in all essential characters. We place this genus in Oleaceæ where we have for many years regarded it as belonging, adopting the view of Richard, who more than half a century ago, said of it "genus affine Chionantho."* Other authors have pointed out its affinity to Oleaceae; but more recently Tulasne.† has clearly shown that this is its true place.

FORESTIERA LIGUSTRINA, *Poir. Enc. Suppl.* 2, *p.* 664. F. pubescens, *Nutt. in Trans. Amer. Phil. Soc.* (*n. ser.*) 5, *p.* 177. Adelia ligustrina, *Michx. Fl.* 2, *p.* 224. Borya ligustrina, *Willd. Sp.* 4, 711; *Pursh, Fl.* 2, *p.* 22. Borders of the Rio Grande in western Texas, and in Chihuahua. Leaves about an inch long, obovate or obovate-oblong, mostly obtuse, abruptly narrowed at the base with a short petiole, slightly serrate, when young pubescent, but at length nearly glabrous except along the midrib and on the petioles. Fruit oblong, about 4 times longer than the pedicels, dark blue, the pulp rather thick and sweetish. Nut nearly even. This is not an uncommon plant in Florida, and on the upper waters of the Red and Arkansas rivers. Michaux has incorrectly described the leaves as *very entire*.

FORESTIERA RETICULATA (n. sp.): foliis ovatis ramulisque glabris acutis vel acuminatis subcoriaceis prominente reticulato-venosis denticulato-serratis subtus porul[illegible]s; cymulis simplicibus; fructibus ovalibus, obtusis apiculatis pedicellis $\frac{1}{3}$ longioribus. Crevices of rocks and in ravines near the Pecos, on the Rio Grande; *Schott*. Ravines near White Oak Creek; *Bigelow*. Western Texas; *Wright*, No. 565. Branches glabrous, but dotted with minute whitish warts. Leaves 1–$1\frac{1}{2}$ inch long, acute at the base, the veins strongly reticulated, especially (in the dry specimens) on the upper surface; the midrib very slightly pubescent underneath. Staminate flowers in small simple cymules with short pedicels. Fertile cymules 3–5 flowered. Fruit about 3 lines long, very dark purple, with a thin sweet pulp, sometimes 2-celled and 2-seeded. Nut oblong, the shell thin and fragile, marked with prominent longitudinal veins. Seed conformed to the cavity of the shell; testa thin pale brown, slightly sulcate longitudinally. F. porulosa,

* Forestiera differs from Chionanthus chiefly as from Fraxinus ornus.

† Annales des Sc. Nat., ser. 3, 15, p. 254.

Poir., (Adelia porulosa, *Michx.*) which much resembles this species, differs in its entire obtuse leaves, narrrowly evolute on the margin.

Forestiera sphærocarpa (n. sp.): foliis ad apicem ramulorum aggregatis, rhomboideo-oblongis parvulis acutiusculis superne crenato-serratis utrinque pubescentibus ; cymulis fœmineis trifloris ; pedicellis pubescentibus fructu subgloboso vix dimidio brevioribus. Dry ravines near the Limpio, July (in fruit); *Bigelow*. Leaves about three-fourths of an inch long, somewhat coriaceous, usually 4 or 5 together in a cluster at the extremity of the short branchlets. Fruit the size of a pepper-corn, with a thin pulp, dark purple and covered with a bloom. This species is easily distinguished by the small fasciculate leaves and small subglobose fruit.

Forestiera angustifolia (n. sp.): foliis fasciculatis lineari-spathulatis vel anguste-lanceolatis integerrimis obtusis glabris obsolete venosis subtus porulosis ; fructibus ovatis acutis. Western Texas near the Rio Grande ; *Wright*, No. 566. Near New Braunfels and shore of Matagorda Bay, February ; *Lindheimer*. Matamoras, Tamaulipas ; *Berlandier*, No. 3024. Mexico ; *Gregg*. A large shrub, densely branched. Leaves in fascicles of 3 to 5, on very short spurs, or undeveloped branches. They are 8–10 lines long and 2–2½ lines wide, somewhat coriaceous. Cymules 3–5-flowered arising from the centre of the tuft of leaves. Bracteoles broadly obovate. Flowers hermaphrodite, 3–4-androus. In Berlandier's specimens the leaves are narrowly lanceolate, more coriaceous, and revolute when dry.

JASMINACEÆ.

Menodora scabra, *Gray, in Sill. Journ. n. ser.* 14, *p.* 44 ; *Torr. in Bot. Pacif. R. Road Rep.* 7, *p.* 18, *t.* 7. Western Texas and New Mexico ; *Parry, Bigelow*. Arroyo del Pozo Verde, Sonora, July ; *Schott*. Ojo de Vaca, etc., Chihuahua ; *Thurber*. (No. 563 and 1694, *Wright*.)

Menodora longiflora, *Gray, l. c.* Ravines and rocky hills along the Rio Grande and its tributaries. (No. 1695 and 1696, *Wright*.)

Menodora heterophylla, *Moricand in DC. Prodr.* 8, *p.* 316 ; *Gray, l. c.* Sandy plains and borders of streams, western Texas and Neuvo Leon ; May—October.

ARISTOLOCHIACEAE.

Aristolochia Californica, *Torr. Bot. Whipp. Rep. p.* 128. Napa county, California, March ; *Thurber*.

Aristolochia longiflora, *Engelm. & Gray, Pl. Lindh.* 1, *p.* 51. Sandy alluvions of the Rio Grande, below the mouth of Los Moras, August ; *Schott*.

Aristolochia brevipes, *Benth. Pl. Hartw. p.* 15. A. Wrightii, *Seemann, Bot. Herald, p.* 330, *t.* 72. Dry rocky ravines northwestern Texas, Chihuahua, and Sonora. (No. 567, 568, and 1700, *Wright*.) No. 1701 of Wright is a form with the lobes of the leaves narrower and less rounded at the extremity. Mr. Seemann's plant was collected in Durango.

NYCTAGINACEÆ.

Selinocarpus diffusus, *Gray, l. c ;* var. parvifolius : foliis parvis (vix semi-pollicaribus); floribus solitariis. Cañons of the Rio Grande, October ; *Parry*. Presidio del Norte, August ; *Bigelow*.

Oxybaphus glabrifolius, *Vahl. Enum.* 2, *p.* 40 ? Western Texas, near the Rio Grande, below El Paso. This seems to have been collected only by Mr. Wright in his earlier explorations. It is his No. 605. Although the involucres are mostly 2 or 3-flowered, it may be only a variety of O. glabrifolius.

Oxybaphus aggregatus, *Vahl l. c.* Plains near the Limpio, Texas; *Bigelow*. (No. 1717, *Wright*.)

NYCTAGINACEÆ.

Mirabilis longiflora, *Linn.*: *Choisy in DC. Prodr.* 13, *pars* 2, *p.* 428. Copper Mines, New Mexico, July; *Bigelow, Thurber.* Mountains east of El Paso, *Wright*, No. 575. his No. 1702 is a glabrous or glabrate form of the species.

Mirabilis multiflora, *Gray.* Oxybaphus multiflorus, *Torr. in Ann. Lyc. N. York*, 2, *p.* 237. Quamoclidion multiflorum, *Torr.*; *Gray, N. Gen. & Sp. Nyct. in Sill. Jour. ser.* 2, 14, *p.* 321. Nyctaginia Torreyana, *Chois. l. c.* Valley of the Rio Grande and at the Copper Mines, April—August. San Felipe, California; *Parry.* (No. 1703, *Wright*; 740, *Fendler*: 1327, *Coulter*, Mex. Coll.)

Mirabilis oxybaphoides, *Gray.* Quamoclidion oxybaphoides, *Gray, l. c.* Western Mexico; *Bigelow, Wright.*

Mirabilis Californica, *Gray.* Oxybaphus lævis, *Benth.?* O. glabrifolius, *Torr. Bot. Whipp. Rep. p.* 131, non *Vahl.* (Tab. XLVI.) Dry hills, San Diego, California; *Parry, Thurber.* Somewhat prostrate, forming dense tufts commonly more or less pubescent, and rarely glabrate.

Oxybaphus nyctagineus, *Sweet; Choisy, l. c.* Western Texas and New Mexico; also in the adjoining Mexican States of Chihuahua and Cohahuila, near the Rio Grande. An extremely variable species, as is shown by Dr. Gray in his note below.

Oxybaphus hirsutus (*Sweet; Choisy, l. c.*): caule pilis patentibus hispido; foliis lanceolatis pilosis utriusque angustatis brevipetiolatis margine undulatis ciliatisque; involucris subsolitaris axillaribus; pedunculis (3–4 linearibus) demum reflexis; involucris subtrifloris; fructu hirsuto inter costas corrugato.—Gravelly hills on the Limpio, &c., July; *Bigelow, Wright.* Stem 12–15 inches high, apparently sometimes assurgent, branching from the base, hispid with short-spreading or reflexed hairs. Leaves 2–2½ inches long, and 1–5 lines wide in the middle; the uppermost ones more undulate than the lower. Peduncles slender, in the axils of the upper leaves; the uppermost ones appearing clustered from the branches being undeveloped. Involucre hairy, at length broadly campanulate and reticulate. Flowers all fallen in our specimens. Fruit 2½ lines long, obovate.

Oxybaphus angustifolius, *Sweet; Choisy, l. c. p.* 433. Plains and river alluvions, western Texas, New Mexico and Chihuahua; June—September.

Oxybaphus coccineus (n. sp.): glaberrimus; caule gracili ramosissimo erecto; foliis linearibus elongatis integerrimis; panicula terminali laxa; involucris 3-floris campanulatis 5-fidis, segmentis acutis; perigonio infundibuliformi (coccineo) involucro 4–5-ties longiore; fructu clavato-oblongo profunde sulcato. Hill sides, Copper Mines, and on the Mimbres; *Wright*, (No. 1723) *Thurber, Bigelow.* Highlands between the Nueces and San Pedro; April—June; *Schott.* Santa Cruz Mountains, Sonora; *Capt. E. K. Smith.* Root ligneous, black and tortuous. Stems 12–18 inches high, slender terete, paniculately branched above. Leaves 2–3 inches long, and mostly about a line wide, but sometimes 2 lines. Inflorescence a loose cymose panicle. Involucres sometimes solitary in upper axils and the pedicels recurved. Perianth about three-fourths of an inch long, funnel-form, with a long narrow tube; the limb of a bright crimson, 5-lobed, with the lobes notched. Stamens and style exserted. Fruit pubescent, strongly 5-ribbed and slightly rugose. This species is almost intermediate between Oxybaphus and Quamoclidion.

Allionia incarnata, *Linn.; Choisy, l. c.* Sandy river-banks and on gravelly hill-sides. Common in New Mexico, western Texas, and Chihuahua, westward to Sonora and California; flowering from April to September. (No. 1716, *Wright.*) The 3 leaves of the involucre are ovate, concave, and are scarcely at all united at the base. Perianth campanulate-funnel-form,

mostly 4-lobed, the lobes notched. Stamens usually 3, not exserted. Fruit oval, the margin winged, usually 4–6-toothed on each side, and reflexed over the back, so that the opposite sides nearly meet, and thus partially conceal two longitudinal dorsal rows of spherical stipitate glands. Achenium oblong, apiculate with the persistent base of the style.

ABRONIA CYCLOPTERA, *Gray, l. c. p.* 319. A. (Tripterocalyx) micrantha, *Torr. in Frêm.* 1*st Rep. p.* 96. Sandy places on the Rio Grande, from Doña Ana to San Elceario, April, June; *Wright*, No. 1712.

ABRONIA ARENARIA, *Menz. in Hook. Exot. Bot. t.* 193; *Choisy, l. c.* Sea beach, Monterey, California; *Parry.* Flowers bright rose-color. Perennial fusiform root sometimes 4 feet long and 2 inches in diameter. It is said to be eaten by the Indians. Common along the coast of California, and extending to Puget's Sound.

ABRONIA UMBELLATA, *Lam. Ill. t.* 5; *Hook. l. c. t.* 194; *Choisy, l. c.* Abundant on the coast of California. Root smaller and more branching than in the preceding species; *Parry.*

ABRONIA MELLIFERA, *Dougl. in Hook. Bot. Mag. t.* 2879; *Choisy, l. c.* Sandy hills near El Paso, etc., westward to the Colorado, California, April—June The wings are triangular and terminate abruptly at the summit, where they are dilated laterally, so that the fruit appears truncated or turbinate. The body of the fruit is much shorter than in the next species.

ABRONIA FRAGRANS, *Nutt. MSS.; Hook. Kew Jour Bot.* 5, *p.* 261; *Torr. & Gray, Bot. Beckwith Rep. p.* 14, *t.* 10. Sandy hills on the upper Rio Grande, and west to Chihuahua, April to August. The mature fruit is distinctly but narrowly 5-winged. What was cited as a dwarf form of A. mellifera in *Bot. Whippl. Rep. p.* 131, is A. fragrans.

NYCTAGINIA CAPITATA, *Choisy, l. c.* Western Texas and valley of the Rio Grande, common. (No. 1709, *Wright;* 680, *Lindheimer, &c.*)

ACLEISANTHES LONGIFLORA, *Gray, l. c.* (TAB. XLVI.) Sandy soils, western Texas and valley of the Rio Grande, on both sides of the river, June—October. (No. 599 and 1704, *Wright.*) The stamens and style are frequently much exserted in the later flowers, as they are in those of A. Berlandieri.

ACLEISANTHES ANISOPHYLLA, *Gray, l. c.* In alluvial soil, Turkey creek, and on Rio San Pedro, western Texas. (No. 598 and 1706, *Wright.*)

ACLEISANTHES BERLANDIERI, *Gray, l. c.* Nyctaginia obtusa, *Choisy, l. c. p.* 429. Near Laredo, lower Rio Grande, June; *Schott.* (No. 1705, *Wright;* No. 1544, 2007, 3044, and 3203, *Berlandier.*) Leaves mostly acute. Flowers white, striped with pale purple.

ACLEISANTHES CRASSIFOLIA, *Gray, l. c.* On the Rio Grande, from Los Moros up to the Pecos, October; *Schott.* (No. 599*a*, *Wright.*)

PENTACROPHYS WRIGHTII, *Gray, l. c. p.* 318. (TAB. XLVII, B.) Rocky hills near Leon Springs, Mexico, September; *Bigelow.* Between Victoria and San Antonio, Texas; *Schott.* In all our specimens the flowers are expanded, with a slender tube an inch and a half long and exserted stamens. The fruit of these flowers differs from that of the unexpanded precociously fructified ones from which Dr. Gray drew the generic character. The 5 glands, instead of being prominent and crowning the fruit, are small, rather depressed, and seated on a neck or constricted portion of the fruit a little below the summit.

SELINOCARPUS CHENOPODIOIDES, *Gray, l. c.* Gravelly hills and valleys on the Rio Grande, from El Paso to the Presidio del Norte, and westward to Ojo de Vaca, Chihuahua, April—July. (No. 1707, *Wright.*)

SELINOCARPUS ANGUSTIFOLIUS (n. sp.): subviscoso-puberulus; caule fruticuloso e basi ramosis-

simo; foliis angusto-ellipticis acutiusculis; floribus in axillis superioribus solitariis demum pendulis; perigonio infundibuliformi tubo breviusculo; staminibus 5 vix exsertis. (TAB. XLVII, A.) Gravelly table land near Presidio del Norte, August; *Parry*, *Bigelow*. Stem apparently diffuse, the upright branches 6–10 inches high, slender. Leaves 6–8 lines long, 1–2 lines wide; the petiole scarcely a line long. Flowers on short pedicels in the uppermost axils, some of them fructifying without being fully expanded, but mostly with a dilated funnel-form border and a tube 1–2 lines long. Stamens and style a little exserted. Fruit as in the preceding species.

BOERHAAVIA PURPURASCENS, *Gray*, *l. c.*, *p.* 321. Hills near the Santa Rita, Copper Mines, New Mexico; *Wright*. Ravines and rocky hills, Presidio del Norte, July—August; *Parry*, *Bigelow*. The inflorescence at length becomes elongated, the flowers separating from each other and forming interrupted or somewhat verticillate spikes. The species is closely allied to B. spicata, *Choisy*.

BOERHAAVIA WRIGHTII, *Gray*, *l. c.* Santa Barbara, southern New Mexico, August; *Bigelow*. Near El Paso; *Wright*. Copper Mines, New Mexico; *Thurber*.

BOERHAAVIA LINEARIFOLIA, *Gray*, *l. c.* Arid soils; valley of the Rio Grande, and near the Copper Mines, New Mexico, June—August. The lower leaves are sometimes ovate-lanceolate.

BOERHAAVIA ERECTA, *Linn.*; *Choisy*, *l. c. p.* 450. Western Texas, New Mexico, and Chihuahua, June—August. We follow Dr. Gray in referring to this species, various forms of an annual Boerhaavia, of which there are numerous specimens in the collection. B. erecta, however, is said by Choisy to be perennial.

BOERHAAVIA PANICULATA, *Rich.*; *Choisy*, *l. c.* Western Texas, near the Rio Grande, June—August.

BOERHAAVIA ANISOPHYLLA (n. sp.): caulibus glabriusculis diffusis basi lignosis; paniculis laxe ramosissimis inferne nudis, ramulis filiformibus; foliis ovatis cordatis brevi-petiolatis glabris undulatis in eodem pari inequalibus supra pallidis subtus albidis; floribus laxe subcymosis breviter pedicellatis basi 3-bracteolatis, bracteolis persistentibus lanceolatis acutissimis; perianthiis rotatis; staminibus 5–8; fructibus obovato-oblongis glabris 5-costatis (non truncatis), costis angustis. Entrance of the Great Cañon of the Rio Grande, October; *Parry*, *Bigelow*. Plant 1–2 feet high. Lower part of the stem slightly pubescent. Leaves in pairs, unequal in size, the larger an inch long and half an inch or more broad. Perianth nearly half an inch in diameter with scarcely any free tube, purple. Stamens and style much exserted. Fruit a line and a half long. Near B. linearifolia, but that is glandularly viscid or villous, the leaves are usually much narrower and hispid on the margin, and the costæ of the fruit are thick and rounded. Dr. Parry collected at the Presidio incomplete specimens of another Boerhaavia, which may be undescribed. It differs from B. anisophylla in the much larger and more diffused panicle, smaller flowers, which are mostly solitary at the extremity of the branchlets, the hispid tube of the perianth, and the hairy fruit.

BOERHAAVIA SPICATA, (*Choisy*, *l. c. p.* 456?): caulibus e radice annua erectis minute pubescentibus; foliis ovatis sæpius obtusis integris repando-dentatis v. undulatis, inferioribus subcordatis; paniculæ ramulis in racemis sparsifloris desinentibus; bracteis bracteolisque lanceolatis cuspidatis; floribus (minutis) triandris; fructibus cylindraceo-clavatis glabris obtuse 5-costatis apice rotundatis. Ravines and damp sandy places. Presidio del Norte; *Parry*, *Bigelow*. Chihuahua; *Thurber*. Valley of the Gila; *Schott*; May—September. Plant 12–18 inches high, slender, the stem somewhat viscous. Leaves an inch long, on conspicuous petioles, often dotted. Racemes when in flower scarcely half an inch long, but in fruit 1–2 inches. Flowers scarcely a line in

diameter, on very short pedicels. Fruit 1½ line long. This seems to be the same as No. 1425 (which is without leaves) of Coulter's Mexican Collection ; but B. spicata, as described by Choisy, differs in the lanceolate acute leaves and in some other unimportant characters.

BOERHAAVIA SCANDENS, *Linn.; Choisy, l. c.* B. Grahami, *Gray, l. c.* Dry ravines near the Cibola of the Rio Grande, August ; *Bigelow.* El Podrero, Sonora, June ; *Schott.* (No. 3204 and 3205, *Berlandier.*) We can discover no essential difference between B. Grahami and our West Indian specimens of B. scandens. Indeed, Dr. Gray suspected they were not distinct. The free portion of the calyx-tube is as short in the latter as in the former, and neither plant is climbing, being only prostrate, or not unfrequently even erect ; so that the specific name is inappropriate.

BOERHAAVIA ERIOSOLENA, *Gray, l. c. p.* 322. Gravelly plains near Presidio del Norte, and below the Great Cañon of the Rio Grande, September ; *Parry, Bigelow.* Annual. Plant 1–2 feet high. Leaves orbicular-cordate, 1½–2½ inches in diameter. Flowers often precociously fructified, and then the somewhat persistent tube becomes more or less elongated, sometimes 5–8 lines or more ; but the limb, in such cases, does not expand.

BOERHAAVIA LEIOSOLENA (n. sp.) : perennis ; caule glabro erecto superne nudo ; foliis rotundato-cordatis carnosis utrinque elevato-punctatis margine crenato-denticulatis glandulosisque ; paniculæ ramis distantibus paucifloris, pedicellis subfasciculatis brevissimis ; bracteis bracteolisque minutis ; perianthii tubo elongato glabro ; fructu turbinato 10-striato ; staminibus 5. In gypseous soil, Great Cañon of the Rio Grande, 70 miles below El Paso, June ; *Parry.* Stem 2–3 feet high, arising from a somewhat ligneous root. Leaves 2–3 pairs, near the base of the stem, 2–3 inches in diameter, roughened on both sides, (at least in dry specimens,) with little elevated dots or papillæ, and the upper surface somewhat flocculose-pubescent. Panicle naked or with only a pair of small leaves at the base of the lowest branches. Flowers somewhat fasciculate toward the summit of the branchlets. Perianth with the free portion of the tube nearly an inch long, the limb ovate but scarcely expanded in any of our specimens ; the adherent portion of the tube expanded at the summit into an annulate narrow wing. Fruit about 2½ lines long, turbinate, crowned with a conical summit. This is evidently allied to the last species, and is a very remarkable plant.

BOERHAAVIA GIBBOSA, *Pavon. ; Gray, l. c. p.* 323. Tinantia gypsophiloides, *Mart. & Gal. ; Choisy, l. c. p.* 457. Borders of the Rio Grande, from El Paso to the mouth of the Pecos, and south-westward, April—October.

My friend Dr. Gray, who has lately revised the North American genera of Nyctaginaceæ and the species of Mirabilis and Oxybaphus, has furnished me with the following conspectus.

J. T.

1. MIRABILEÆ. Involucrum calyciforme, gamophyllum, 1–12-florum. Stigma capitatum, granulatum.

* Anthocarpium symmetricum, apterum. Involucrum 5-fidum.

MIRABILIS, *Linn.* Anthocarpium læve, haud angulatum, ecostatum aut vix costatum, ovoideum. Involucrum herbaceum, post anthesin vix mutatum. Stamina sæpissime 5.

OXYBAPHUS, *L'Her.* Anthocarpium 5-costatum, obovatum vel clavatum, costis validis. Involucrum post anthesin auctum, rotato-explanatum, scariosum, reticulatum. Stamina sæpissime 3.

** Anthocarpium læve, hinc excavatum, marginibus alæformibus rigidis plerumque dentatis

inflexis, in centro linea duplici tuberculorum. Involucrum tripartitum, triflorum, fructiferum haud scarioro-explanatum.

ALLIONIA, *Linn.* pro parte, *Chois.* (This genus should: by right, have borne the name of Wedelia, *Lœfl.*, and Oxybaphus that of Allionia, *Lœfl.*) Although the number of parts in the involucre may well be more important than the number of flowers it incloses as Choisy remarks, yet the principal character of Allionia is in the fruit.

2. ABRONIEÆ. Involucrum polyphyllum, perfectum, e bracteis discretis 5–15, capitulum multiflorum fulcrans. Stigma capitatum vel lineari-clavatum.

NYCTAGINIA, *Choisy.* Perigonium tubuloso-infundibuliforme, lobis integris. Genitalia longe exserta. Anthocarpium nuciforme Mirabilis, ecostatum.

ABRONIA, *Juss.* Perigonium hypocraterimorphum, lobis obcordatis. Genitalia inclusa. Anthrocarpium perfectum 5-peterum. Embryo abortu monocotyledoneus.

3. ACLEISANTHEÆ. Involucrum imperfectum, e bracteolis 2–3 parvis ad flores singulos, vel nullum. Stigma læve, peltatum seu pileiforme.

SELINOCARPUS, *Gray.* Anthocarpium alatum, alis 5 vel abortu 3 aveniis.

ACLEISANTHES, *Gray.* Anthocarpium et perigonium (longe tubulosum) Mirabilis.

PENTACROPHYS, *Gray.* Anthocarpium cylindricum, 5-costatum, costis apice glandula sæpius tumida instructis.

BŒRHAAVIA. Anthocarpium nunc 5-costatum vel angulatum, nunc 10-costatum. Flores sæpius paniculati vel racemosi.

MIRABILIS, *Linn.*

§ 1. NYCTAGE, *Royen.* Involucrum uniflorum. Perigonium longe tubulosum vel infundibuliforme. Flores ampli.

M. JALAPA & M. LONGIFLORA, *Linn.*, cum variis.

§ 2. QUAMOCLIDION, *Choisy.* Fere præcedentis, sed involucrum 3–12-florum.

M. TRIFLORA, *Benth. Pl. Hartw.* Quamoclidion nyctagineum, *Choisy.*

M. MULTIFLORA. Oxybaphus multiflorus, *Torr.* Quamoclidion multiflorum, *Torr.*, etc.

§ 3. OXYBAPHOIDES. Involucrum 1–3-florum. Perigonium e tubo brevi late infundibuliforme. Flores pro genere parvi.

M. OXYBAPHOIDES. Quamoclidion oxybaphoides, *Gray in Sill. Jour.* (ser. 2,) 15, *p.* 320. Involucrum triflorum, 5-partitum, fructiferum tenui-membranaceum. Stam. 3.

M. CALIFORNICA. Oxybaphus lævis, *Benth. Bot. Voy. Sulph. p.* 44? O. glabrifolius, var. crassifolius, *Choisy in DC. Prodr.* 13, *p.* 431. O. glabrifolius, *Torr. Bot. Whipp. Rep. p.* 131, non *Vahl.* Aut glabra, aut viscoso-villosa, foliis parvis subcordatis. Involucrum uniflorum, 5-fidum. Stam. plerumque 5. (This cannot be Oxybaphus ovatus, which is said to have "semen obovatum læve," for it is also said to have the involucrum "crescentes in membranam venoso-reticulatam patentissimam." *R. & P.*)

OXYBAPHUS.

The two sections founded on the number of the flowers in the involucre are of small value in this genus. Betero's No. 495, referred by Choisy to O. ovatus, and probably (with Calyxhymenia ovata, *R. & P.*?) only a form of O. viscosus, exhibits two if not three flowers in the same involucre. No. 511 of Dr. Gregg's Mexican Collection is in the same case, and is pretty clearly O. viscosus notwithstanding. And I think that Wright's No. 605, with glabrous and papillose-

tuberculate fruit, is only a similar state of O. glabrifolius. The 3-flowered species occasionally bear four or five flowers.

Our species are exceedingly variable, and hard to fix by characters. The tubercles or papillæ develope variously in the same species, and they also change after wetting, deliquescing more or less into mucilage. The earlier flowers of O. nyctagineus, and probably of other species, are apt to fructify precociously.

I can understand our species only as follows:

§ 1. Perigonium breve, subcampanulatum seu rotato-infundibuliforme, involucrum paullo superans.

* Anthocarpium glabrum secus vel etiam inter costas sæpissime tuberculatum. Involucrum 1–3-florum.

O. VISCOSUS et O. GLABRIFOLIUS, Mexico.

O. GLABRIFOLIUS, *Vahl.*: var. involucro 2–3-flora. Texas, in mountain valleys near the Rio Grande, below El Paso; No. 605, *Wright*.

O. AGGREGATUS, *Vahl.* Mirabilis aggregata. *Cav. Ic.* 5, *t.* 437. Smith's Run, western Texas; No. 1717, *Wright*. Certainly the plant of Cavanilles, and found north of Mexico by no other collector.

** Anthocarpium pubescens. Involucrum semper 3–5-florum.

O. NYCTAGINEUS, *Sweet.* Allionia nyctaginea, *Michx. Fl.* 1, *p.* 100. Folia omnia (nisi summa diminuta) petiolata, basi obtusa vel cordata. Fructus hirsutulus, inter costas nunc leviter subreticulato-rugosus.

Var. α LATIFOLIUS: usque ad involucrum fere glaber seu glaberrimus; foliis ovatis cordatisve submembranaceis, facie Mirabilis. Allionia nyctaginea, *Michx.* Wisconsin to Texas and New Mexico. No. 741, *Fendler;* 603, *Wright;* 681, (1847–8,) *Lindheimer*, &c. This needs to be compared with O. violaceus, a Linnæan species, of which I have no sufficient specimens.

Var. β CERVANTESII: ramulis involucrisque viscoso-pubescentibus seu villosis; foliis plurisque minoribus et crassioribus sæpius obtusis cordatis vel basi subcordatis. O. Cervantesii, *Lag. ex Choisy, l. c.* New Mexico and Texas to Mexico. No. 912, *Coulter;* 742, *Fendler;* 1719 and 1720, *Wright*. No. 1719, in part, and 1721, *Wright*, an intermediate between α and β.

Var. γ OBLONGIFOLIUS: foliis ovato-lanceolatis oblongisve crassis basi haud cordatis; cæt. var. β. Allionia ovata, *Pursh, Fl.* 1, *p.* 97. Oxybaphus floribundus, *Choisy, l. c.* A mere form of the last. No. 604, *Wright;* 2004, *Berlandier*, &c.

Var. ε PILOSUS: undique viscoso-hirsutus; cæt. var. β & γ. Calymenia pilosa, *Nutt. Gen.* 1, *p.* 26. Upper Missouri to New Mexico. No. 1718, *Wright;* between this and var. β. Rio Mimbres, &c.; *Bigelow*.

O. ALBIDUS, *Sweet; Choisy, l. c.* Allionia albida, *Walt. Fl. Car. p.* 84. Calymenia albida, *Nutt.* Oxyb. pilosa? *Engelm. & Gray, Pl. Lindh. l. c. p.* 51. Præter inflorescentia glabella. Folia omnia subsessilia, lanceolata seu oblongo-lanceolata, basi acuta. Fructus magis hirsutus quam in O. nyctagineo, secus vel inter costas muriculatus. North Carolina to Texas. *Hook. Fl. Bot. Am.* 2, *p.* 124.

O. HIRSUTUS, *Sweet; Choisy, l. c.* Allionia hirsuta, *Pursh, Fl.* 2, *p.* 728. Calymenia hirsuta, *Nutt. l. c.* Saskatchewan to northwestern Texas; on the Limpio; *Bigelow, Wright*. Subpedalis, undique hirsutus. Folia lanceolata, crassa, inferiora breviter petiolata. Fructus O. nyctaginei. The broader-leaved states approach var. ε of O. nyctagineus; the narrow ones becoming glabrate may pass into the next species.

O. ANGUSTIFOLIUS, *Sweet; Choisy, l. c.* (pro parte.) Colymenia angustifolia, *Nutt.* C. decumbens, *Nutt.* Allionia linearis, *Pursh, l. c.* Folia linearia, sæpius elongata, repanda, crassa, glaucescentia, cum caule 1–6 pedali glaberrima. Pedunculi et involucra pubescentia. Fructus cinereo-pubescens. Upper Missouri to the Rocky mountains, New Mexico, and Texas. No. 745, *Fendler;* 606, 607, 1822, *Wright.*

§ 2. Perigonium angustius infundibuliforme, involucro quadruplo longius. Anthocarpium clavato-oblongum, apiculatum, pubescens, inter costas validas profunde sulcatum.

O. COCCINEUS, *Torr. ined.* Species habitu præcedentis, floribus et fructu distinctissimum. New Mexico.

POLYGONACEÆ.

ERIOGONUM HIERACIFOLIUM, *Benth. in DC. Prodr.* 14, *pars* 1, *p.* 6. Hillsides, along the cañons of Rio Grande, above the mouth of the Pecos; *Parry.* Western Texas, near the Rio Grande; *Wright,* No. 616. A well-marked species, but allied to E. alatum, from which it is easily distinguished by the achenium being winged only above the middle, and not at all below. It is commonly about a foot and a half or two feet high. The sepals are nearly equal, and vary from yellowish to rose color. Pedicels articulated close to the flower. Bracteoles linear, glabrous. Embyro excentric and a little curved.

ERIOGONUM ALATUM, *Torr. in Sitgreave Rep. p.* 168, *t.* 8; *Benth. l. c.* Hills near the Copper Mines, New Mexico; also near Cruces, June—July; *Bigelow, Thurber,* (No. 225.) Some of the specimens are more than four feet high.

ERIOGONUM CILIATUM (*Torr.*; *Benth. l. c.*): herbaceum, perenne; caule nudo tereti glabro parce dichotomo-ramoso; foliis radicalibus obovatis obtusis cum acumine brevissimo basi in petiolum attenuatis supra glabris, subtus pilosiusculis margine ciliatis; pedunculis elongatis; involucris campanulatis 5-fidis; perigoniis subcoriaceis semisexfidis, laciniis ovatis erectis, interioribus paullo longioribus angustioribusque; achenio triquetro perigonio fructifero subæquali. Sandy soil near Buena Vista, Cohahuila, July; *Dr. Edwards.* Near Monterey, in the same State; *Gregg.* Root perennial; leaves in a subradical cluster from a short divided caudex, 1½ to 2½ inches long (including the petiole) and six to ten lines wide. Stems, several from one root, 12–15 inches high, slender, two to three times forked, the terminal divisions bearing a solitary involucre which is about two lines in diameter. Flowers very numerous, the pedicels jointed close to the flower. Bracteoles narrowly linear, fringed with long hairs. Perianth purple, of a coriaceous (or probably, in the living plant, of a fleshy) texture; the segments extending scarcely below the middle, rather obtuse; the entire base showing six obtuse ridges. Stamens included, six of them alternating with the segments, the other three opposite the inner segments and inserted considerably lower down; filaments smooth. Ovary triangular; styles very short. Achenium enclosed in the connivent perianth, triquetrous, smooth. Embryo incurved, excentric. On high plains near San Juan de la Vagueria, Dr. Gregg found an Eriogonum that seems to be a variety of this species, but it differs in the following characters: var. FOLIOSUM: caule scabriusculo 2–3-chotome ramoso, axillis foliosis. Plant about a foot high, more branched than the preceding; the radical leaves smaller, less ciliate, and of a somewhat fleshy texture. Cauline leaves about three quarters of an inch long; smooth. Peduncles one to one and a half inch long. Sepals united to the middle, closing around the fruit.

ERIOGONUM LONGIFOLIUM, *Nutt. in Trans. Amer. Phil. Soc.* (*n. ser.*) 5, *p.* 164; *Benth. l. c.* Mountains and plains near Live Oak Creek, September; *Bigelow.*

ERIOGONUM JAMESII, *Benth. l. c.* Hill sides and arroyas on the upper Rio Grande and its tributaries.

ERIOGONUM FASCICULATUM, *Benth. in Linn. Trans.* 17, *p.* 411, *& in DC. Prodr. l. c.* Near San Felipe, etc., California; *Parry, Schott.*

ERIOGONUM POLIFOLIUM, *Benth. in DC. Prodr. l. c.* Sandy hills, San Felipe; *Thurber*, (No. 587,) and near San Diego, California; *Parry.* Dr. Andrews found it also at Monterey. On the lower Gila; *Schott.* This species forms bushy tufts one to two feet in diameter.

ERIOGONUM WRIGHTII, *Torr.; Benth. l. c. p.* 15. Hill sides, Copper Mines, and along the Rio Grande from Albuquerque to the great cañons; frequent. Dry plains, Los Playas, Sonora, June; *Thurber.* Var. HELIANTHEMIFOLIUM. E. helianthemifolium, *Benth. l. c.* Pine mountains east of San Luis Rey, California; *Parry.*

ERIOGONUM VIRGATUM, *Benth. in DC. Prodr. l. c. p.* 16. Grassy places near San Luis Rey, California; *Parry.* This agrees very well with the original specimens of Frémont, named by Bentham.

ERIOGONUM GRACILE, *Benth. Bot. Sulph. p.* 46. Sandy ravines, Sonora, September; *Thurber.*

ERIOGONUM ACETOSELLOIDES, *Torr.; Benth. in DC. Prodr. l. c. p.* 16?. Near Santa Barbara, California, August; *Parry.* The flowers are smaller and on longer pedicels than in specimens collected in the United States Exploring Expedition.

ERIOGONUM VIMINEUM, *Dougl.; Benth. in Trans. Lin. Soc.* 17, *p.* 416. Sandy hills, San Felipe, California, May; *Thurber.*

ERIOGONUM MULTIFLORUM, *Benth. l. c.* Western Texas, along the lower Rio Grande to its mouth.

ERIOGONUM ANNUUM, *Nutt. l. c.; Benth. in DC. Prodr. l. c. p.* 19. E. cymosum, *Benth. l. c.* Alluvions of the Cibolo, a tributary of the Rio Grande, and rocky places, Howard's Springs, August—September; *Bigelow.*

ERIOGONUM TENELLUM, *Torr. in Ann. Lyc. New York,* 2, *p.* 241; *Benth. l. c.* Mountains below San Elceario, and at the mouth of the Great Cañon of the Rio Grande; *Bigelow, Parry;* also on the San Pedro, western Texas. (Nos. 619 and 1767, *Wright.*) Some of our specimens are two feet high.

Var. β PLATYPHYLLUM. E. platyphyllum, *Torr.; Benth. l. c.* On the Rio Grande, western Texas. (Nos. 618 and 1768, *Wright.*) Intermediate forms show a gradual transition from this variety to E. tenellum.

ERIOGONUM TRICHOPODUM, *Torr.; Benth. l. c.* Dry ravines and rocky banks, along the Rio Grande from El Paso to the Great Cañon, and west to the Colorado of California. The leaves are all radical, orbicular, or roundish-ovate, cordate, on petioles much longer than the lamina.

ERIOGONUM CORDATUM, *Torr.; Benth. l. c.* Near San Felipe, on the borders of the California desert; *Parry.*

ERIOGONUM THURBERI (n. sp.): annuum, humile, arachnoideo-lanosum; foliis subradicalibus longe petiolatis late ovatis obtusis subcordatis rugosis, margine subundulatis, subtus incano-tomentosis; caule superne divaricato 2–3-chotomo; pedunculis elongatis capillaribus; involucris late campanulatis 5–6-fidis paucifloris; perigoniis glabris profunde 6-fidis, laciniis exterioribus superne reniformi-dilatatis medio constrictis; interioribus oblongo-subpanduriformibus. Sandy ravines, San Pasqual, California, May; *Thurber.* I have seen specimens of this plant collected in California by Mr. Wallace. Leaves in a subradical cluster, about half an inch long undulate-rugose, pubescent above, white-tomentose underneath. Stem a scape about a span high tricho-

tomously subdivided below the middle, with ovate acute ternate bracts at the forks. Pedicels an inch long. Involucre less than a line in diameter, cleft nearly to the middle into six rather obtuse lobes; exterior segments of the perianth nearly four times broader than the inner. Filaments and ovary smooth. Styles short. Achenium smooth. Embryo strongly curved. No bracteoles were detected; in their place are only woolly hairs. Resembles E. rotundifolium in the flowers; but that species has numeous stems, which branch near the root, even leaves; much shorter stout peduncles, and manifest bracteoles.

ERIOGONUM ROTUNDIFOLIUM, *Benth. l. c.* Rocky ravines along the Rio Grande from El Paso to Santa Barbara, and west to Santa Maria, Cohahuila, April—June. (No. 1765, *Wright.*)

ERIOGONUM CERNUUM, *Nutt. Pl. Gamb. in Jour. Acad. Sc. Phil. n. ser.* 1, *p.* 162; *Benth. l. c.* On the Gila; *Schott.*

ERIOGONUM ABERTIANUM, *Torr. in Emory's Rep. p.* 151; *Benth. l. c.* Sandy soils, valley of the upper Rio Grande; westward along the Gila, and in Chihuahua. Variable in height and breadth of leaves, but always easily recognized. (Nos. 620, 621, 622, 1761, 1762, 1763, *Wright.*)

ERIOGONUM PHARNACEOIDES, *Torr. in Sitgreave's Rep. p.* 167, *t.* 11; *Benth. l. c.* Hills near the Copper Mines; *Bigelow.* Near Janos, Chihuahua; *Thurber.*

CHORIZANTHE ANGUSTIFOLIA, *Nutt. l. c.*; *Benth. l. c.* Near Monterey, California, on the sandy beach, May; *Parry.*

CHORIZANTHE DIFFUSA, *Benth. Pl. Hartw. p.* 333, *& in DC. Prodr. l. c.* With the last; *Parry.*

CHORIZANTHE PROCUMBENS, *Nutt. l. c.; Benth. l. c.* San Diego, California, May; *Thurber.*

CHORIZANTHE BREVICORNU (n. sp.): annua; foliis radicalibus anguste-spathulatis hirsutis; caulibus subnudis erectis 2–3-chotome ramosis; cymis laxe corymboso-paniculatis; involucris glabriusculis anguste tubulosis, dentibus subæqualibus subulato-aristatis recurvis tubo triplo-brevioribus, perigonii laciniis integris acutiusculis æqualibus. On the Gila River, *March; Parry,;* also collected by Colonel Frémont on the same river. Plant 1–4 inches high. Leaves scarcely a line wide, rather acute. Bracts subulate. Involucre about 3 lines long, a little curved, the teeth scarcely uncinate. Stamens only 3 in all the specimens examined. Near C. staticoides, but with a much looser inflorescence, shorter involucral teeth, equal perianth-segments and only 3 stamens.

CHORIZANTHE FIMBRIATA, *Nutt. l. c.; Benth. l. c. Torr. in Pacif. R. Road Expl.* 6, *p.* 362, *t.* 8. "Dry hills around San Diego, California, in such profusion as to give them a red appearance:" *Thurber.*

ACANTHOGONUM RIGIDUM, *Torr. in Bot. Whippl. Rep. p.* 133, *& in Bot. Parke's Rep. t.* 8. Desert west of the Colorado, California, March; *Schott.*

MUCRONEA CALIFORNICA, *Benth. in Linn. Trans.* 17, *p.* 419, *t.* 20, *& in DC. l. c. p.* 27. Dry hills near San Diego, California; *Parry.* In our specimens the involucres are all 3–4-toothed.

CENTROSTEGIA THURBERI, *Gray, in DC. Prodr. l. c. p.* 27; *Torr. in Bot. Parke's Rep.* 7, *p.* 19, *t.* 8. Sandy hills near San Felipe, California, May; *Thurber, Antisell.*

PTEROSTEGIA DRYMARIOIDES, *Fisch. & Mey. Ind.* 2, *Sem. Hort. Petrop. p.* 48; *Benth. l. c.* San Pasqual, and Napa, California, May; *Thurber.* Mr. Thurber's specimens from Napa resemble those collected by Dr. Bigelow near San Gabriel, in which the leaves are 2-cleft with variously cut segments.

RUMEX HYMENOSEPALUS (n. sp.): glaberrimus; foliis ovato-lanceolatis basi angustatis margine subundulatis; panicula aphylla, racemis elongatis erectis, verticillis approximatis multifloris;

pedicellis capillaribus valvas æquantibus; valvis lato-cordatis membranaceis integerrimis ecallosis. Sandy soils from El Paso to the cañons of the Rio Grande; March—April. Root white. Stem 2–3 feet high. "Foliage intensely bitter;" *Thurber*. Lower leaves a foot or more long and 2–3 inches wide, somewhat undulate on the margin; upper ones nearly flat. Panicle a foot long; the flowers crowded. Inner sepals of the fructiferous calyx nearly half an inch long, roundish-ovate, strongly cordate, of a very thin texture, often rose-colored, slightly reticulate-veined, twice as long as the achenium. We cannot refer Rumex to any described species. It is nearest R. venosus, but that is a smaller plant, the leaves with a much longer and more attenuated base, the panicle lax, and with but few flowers in whorls, and the valves are a great deal larger, as well as broader in proportion.

RUMEX SALICIFOLIUS, *Weinm. in Flora*, 1821, *ex Meisn. in DC. Prodr.* 14, *pars* 1, *p.* 47. Banks of the Rio Grande near Frontera, Texas; April. (No. 1780 and 1781, *Wright.*)

Var. DENTICULATIUS: valvulis lato-deltoideis denticulato-serrulatis vix callosis. Near San Diego, California; *Thurber*. Probably a distinct species.

RUMEX MARITIMUS, *Linn.; Meisn. l. c. p.* 59. Moist sandy places near San Luis Rey, Calfornia; *Parry.*

POLYGONUM AVICULARE, *Linn. Sp. p.* 519; *Meisn. l. c. p.* 97. Western Texas; *Wright*, No. 1774 and 1775; the latter a tall erect slender form with narrowly lanceolate leaves.

POLYGONUM PARONYCHIA, *Cham. & Schlecht. in Linnæa*, 3, *p.* 51. *Meisn. l. c. p.* 89. Near Monterey, California; on the sea beach, April; *Parry*. San Francisco, March; *Thurber.*

POLYGONUM CAMPORUM, γ BOREALE, *Meisn. in Mart. Fl. Bras. fasc.* 14, *Polyg. p.* 22; *& in DC. Prodr.* 14, *pars* 1, *p.* 87. Dry bed of the Sea Willow, Texas, August; *Bigelow*. Mouth of Los Moros; *Schott*. (No. 614, *Wright.*) Stems 3–4 feet long, simple below, apparently arising from a creeping rhizoma, the branches elongated, terete, terminating in long slender interrupted spikes; bracts 2–4-flowered, the lower ones remote and sometimes with small oblong leaves in the axils, the upper somewhat approximated. Flowers on exserted pedicels. Perianth pale rose color or white, not punctate. Achenium triquetrous.—Allied to P. scoparium of Corsica.

POLYGONUM TENUE, *Michx. Fl.* 1, *p.* 238; *Torr. Fl. N. York*, 2, *p.* 153. Hill sides, Santa Rita del Cobra, Aug.; *Bigelow*. (No. 1776, *Wright.*)

POLYGONUM ACRE, *H. B. K.; Meisn. l. c. p.* 107. P. hydropiperoides, *Pursh*, non *Michx*. Between El Paso and Doña Ana, on the Rio Grande, April; also on the Mimbres; *Bigelow*. (No. 1777, *Wright.*)

POLYGONUM HYDROPIPEROIDES, *Michx. Fl.* 1, *p.* 239; *Meisn. l. c. p.* 103. Brady's Creek, western Texas, October; *Thurber.*

POLYGONUM NODOSUM, *Pers.* var. INCARNATUM, *Gray, Bot. N. States, ed.* 2, *p.* 372. P. incarnatum, *Ell.* With the last. Wet ravines below San Elceario on the Rio Grande; *Bigelow*. Western Texas; *Thurber.*

POLYGONUM PENNSYLVANICUM, *Linn. Sp.* 1, *p.* 519; *Meisn. l. c.* Low grounds near San Elceario Texas; *Bigelow*. Sonora; *Thurber, Capt. E. K. Smith.*

POLYGONUM PERSICARIA, *Linn.; Meisn. l. c.* Wet places; Valley of the Limpio, etc.

POLYGONUM AMPHIBIUM, *Linn.; Meisn. l. c.* Var. TERRESTRE. Presidio del Norte; *Bigelow* (a nearly glabrous form.) Santa Cruz river, Sonora; *Capt. E. K. Smith*. (No. 1779, *Wright.*

BASELLACEÆ.

Anredera scandens, *Moq. in DC. Prodr.* 13, *pars* 2, *p.* 230. Basella vesicaria, *Lam. Dict.* 1, *p.* 382. Alluvions of the lower Rio Grande, below Roma, September—October; *Schott.* A very common vine in the thorny "chapparal," twining profusely on every fence and hedge near Corpus Christi; *Dr. Edwards.*

AMARANTACEÆ.

Acanthochiton Wrightii, *Torr. Bot. Sitgr. Rep. p.* 170, *t.* 13. Plains among the Burro mountains, September; *Bigelow.* Los Medanos, Chihuahua, August; *Thurber.* These specimens are very perfect and enable us to amend the character of Acanthochiton given in the work here quoted. There are three somewhat unequal bracts to each male flower. The cells of the anthers are separate at the summit, and very acute. The female flowers are mostly ternate and are subtended by three bracts, the middle one of which is cordate-falciform and usually much larger than the lateral ones.

Celosia paniculata, *Linn. Sp. p.* 298; *Moq. in DC. Prodr.* 13, 2, *p.* 240. Shady woods near Eagle Pass, on the Rio Grande; also on the San Pedro river, western Texas, August—November; *Bigelow.* (No. 594, *Wright.*) A common plant in subtropical America. Dr. Edwards found it at Corpus Christi, and Mr. Blodgett at Key West.

Amarantus hybridus, *Linn. Sp. p.* 1406; *Moq. l. c. p.* 259. On the Rio Grande, and along the Gila. (No. 1648, *Wright.*) Probably not indigenous.

Amarantus Blitum, *Linn. l. c.; Moq. l. c.* Low places, near Camp Bache, July; *Bigelow.* Introduced from Europe?

Sarratia Berlandieri, *Moq. l. c. p.* 268. Mountains of the Cibola, a tributary of the Rio Grande, August; *Bigelow* Our specimens are about 18 inches high, which is three times taller than Berlandier's plant, as described by Moquin.

Sarratia Berlandieri, var. emarginata: foliis oblongo-lanceolatis; calycis fœminei laciniis lato-cuneatis, emarginatis. Camp Green, October; *Parry.* This variety is about a foot high. Except in the laciniæ of the perianth, it does not appear to differ from the preceding.

Sarratia Berlandieri, var. denticulata: foliis lineari-lanceolatis, calycis fœminei laciniis lato-cuneatis margine eroso-denticulatis. Santa Cruz, Sonora, September; *Thurber.*

Sarratia Berlandieri, var. fimbriata: foliis linearibus; glomerulis subglobosis densifloris, inferioribus axillaribus superioribus approximatis subspicatis; calycis fœminei laciniis æqualibus flabellato-cuneiformibus apice dentato-fimbriatis. On the Gila river; *Schott.* (No. 582, *Wright.*) Stem 2 feet or more in length, smooth, branching; the branches erect. Leaves $1\frac{1}{2}$–$2\frac{1}{2}$ inches long, $1\frac{1}{2}$–2 lines wide, smooth, tapering at the base. Glomerules of flowers about one-third of an inch in diameter, the upper ones aggregated in a long naked spike. Bracts subulate. Perianth parted nearly to the base; the segments spreading, mostly broader than long, abruptly narrowed to a short claw, the summit cut into irregular acute teeth or laciniæ. Ovary globose ovate; stigmas 3–4. Utricle tubercular-rugous at the summit. Seed lenticular, acute on the margin, smooth, and shining. This appears to be quite a distinct species.

Amblogyna polygonoides, *Raf.; Moq. l. c. p.* 270. Amarantus polygonoides, *Linn.* Western Texas, (No. 1746, *Wright.*) We have it also from Dr. Gregg, who collected it at Cerro Alto, Mexico. The genus Scleropus, of Schrader, is founded on an abnormal state of this plant, in which the peduncles and pedicels have become thickened and indurated. We have it in this

state from Key West, collected by Mr. Blodgett, and from the vicinity of New Orleans, where it was found by Dr. Riddell. Even some of Berlandier's specimens, which Moquin referred to Scleropus, are in the ordinary state of Amblogyna polygonoides.

MONTELIA TAMARISCINA, *Gray, Man. Bot. ed.* 2, *p.* 370. Amarantus tamariscinus, *Nutt. in Trans. Amer. Phil. Soc.* (*n ser.*) 5, *p.* 165. Ravines Rio San Pedro, western Texas, September; *Bigelow*, who collected only the male plant; while Wright (under No. 1747) has both sexes.

GUILLEMINEA DENSA, *Moq. l. c. p.* 338. Plains between the Limpio and the Rio Grande; also near the Copper Mines, July—August; *Bigelow.* Sonora; *Thurber.* On the banks of the Colorado, California; *Schott.* (Nos. 584, 585, and 1755, *Wright.*) Mr. Thurber's plant exactly accords with the description of Moquin, l. c.; but our specimens from the other collections have broader leaves.

GOSSIPIANTHUS RIGIDIFLORUS, *Hook. Ic. Pl.* 3, *t.* 251; *Moq. l. c. p.* 337. Western Texas. (*Wright*, Nos. 586 and 1754.) This plant occurs only in the collections of Mr. Wright. It is certainly the same as Drummond's, on which the species was founded. We have no original specimens of G. tenuiflorus for comparison, but we believe that it is not distinct from G. rigidiflorus. In our Drummondian specimens of the latter, the plant is in fruit and the stamens are withered. In the more complete ones of Mr. Wright the filaments are ovate-lanceolate, as they are described in G. tenuiflorus; and in both they are connate at the base. The relative length of the bracts and calyx depends on the age of the flower.

IRESINE VERMICULARIS, *Moq. l. c. p.* 340. Illecebrum vermiculatum, *Linn.* Lower Rio Grande, in alluvial soils, October, *Schott.*

IRESINE DIFFUSA, *Humb. & Bonpl. in Willd. Sp.* 4, *p.* 765; *Moq. l. c. p.* 345. Var. foliis ovato-oblongis; spiculis oblongis; calyce bracteis subduplo longiore; staminodiis subulatis staminibus alternantibus et triplo-brevioribus. Sonora and Chihuahua; *Thurber.* San Estaban, September; *Bigelow.* On the Rio Grande, near the Great Cañon; *Parry.* Perhaps not distinct from I. celosioides, to which, indeed, some other species of the section Iresinastrum might be referred; but we have not found staminodia in any other of this group.

All our specimens are female. No. 589, *Wright*, is the male plant, in which there are small subulate staminodia between the filaments; thus resembling Ireneis, of Moquin, a genus scarcely distinct from Iresine.

ALTERNANTHERA ACHYRANTHA, *R. Br. Prodr. p.* 417; *Moq. l. c. p.* 358. Achyranthes repens, *Linn.; Ell. Sk.* 1, *p.* 309. Banks of the Rio Pecos; *Schott.* Bachimba, Chihuahua; *Thurber.* Matamoras; *Gregg.* Moquin refers Elliott's plant to Telanthera polygonoides, but it certainly belongs here.

ALTERNANTHERA LANUGINOSA, *Torr. in Emory Rep. p.* 150; *Moq. l. c. p.* 359, (pro parte.) Achyranthes lanuginosa, *Nutt. in Amer. Phil. Trans.* (*n. ser.*) 5, *p.* 166. Common in New Mexico and Sonora, flowering through the summer. (Nos. 591 and 1756, *Wright;* Nos. 726 and 727, *Fendler;* Nos. 835 and 2255, *Berlandier.*) In Emory's Report I noticed a remarkable character in the specimens examined. The flowers become imbedded in the branches on which they grow, so that when in fruit they are partly or wholly concealed; on which account I proposed to call it Endotheca. This character is, however, not constant, or is only seen in old specimens. Sometimes the short branches, with the cluster of flowers at the summit subtended by two or three leaves, will assume the appearance of a pedunculate head, furnished with an involucre. The peduncle becomes thickened upward, as does likewise the confluent bases of the leaves, involving more or less the flowers. In the young state the plant is densely woolly with

verticillate hairs, but is nearly smooth later in the season. The staminodia are merely obtuse lobes between the filaments, or are wanting altogether. According to Mr. Schott the Mexicans use a decoction of this plant as tea.

ALTERNANTHERA? SUFFRUTICOSA (n.sp.): cinereo-pubescens: caule suffruticosa erecto? ramosissimo; foliis inferioribus ovatis breviter petiolatis, superioribus verticillatis subternatis suborbiculatis sessilibus; glomerulis paucifloris axillaribus sessilibus; sepalis oblongo-lanceolatis versus apicem pilosis bracteis duplo longioribus. Mountains near Frontera and between the Pecos and the Limpio; *Wright*, No. 592 and 1757. This species is truly suffruticose; the stems (which seem to grow erect,) arise from a thick irregular woody base. The A. lanuginosa is always annual and diffuse; the leaves are larger, with a long abruptly attenuated base, and the glomerules are fewer flowered.

GOMPHRENA TUBERIFERA (n. sp.:) parce pilosa; radice tuberosa; caule erecto ramoso herbaceo; foliis lanceolato-linearibus sessilibus integerrimis mucronulatis cinereis; pedunculis elongatis simplicibus; capitulis globosis vel ovatis solitariis plerumque diphyllis; floribus nitidulis alboroseis; calyce bracteis lateralibus subæquali; sepalis acutissimis uninerviis villosissimis. Rocky banks of the San Pedro and other tributaries of the Rio Grande, Western Texas and in New Mexico. (Nos. 593 and 1750, *Wright.*) Root fusiform, 1½–2 inches long and about one-third of an inch in diameter above, fleshy and farinaceous; stem 1–2 feet high, sparingly branched.

GOMPHRENA DECUMBENS, *Jacq; Moq. l. c. p.* 410. Lower Rio Grande, October; *Schott.* This agrees very well with specimens from Havana, named by Moquin.

GOMPHRENA GLOBOSA: var. ALBIFLORA, *Moq. l. c.* On the Cibola and other tributaries of the Rio Grande; *Bigelow, Schott.* Santa Cruz and Babocomori, Sonora, September; *Thurber.* (No. 1751, *Wright.*)

GOMPHRENA SONORÆ (n. sp.:) caulibus e basi lignosa ortis pilosis; foliis lanceolatis sessilibus pilosis pallide viridibus; capitulis terminalibus et lateralibus ovatis simplicibus vel 2–3 confluentibus 2–4-phyllis; floribus flavescenti-vel carneo-albidis; bracteis lateralibus dorso sursum angusto-cristatis calyce paullo longioribus, sepalis acutissimis uninerviis villosissimis; stylo ovario longitudine apice bifido. Mountains near Santa Cruz, Sonora, Mexico, September; *Wright*, (No. 1749,) *Thurber.* Stems simple or sparingly branched, slender, 1–2 feet high, sparingly clothed with appressed hairs. Leaves 1–1½ inch long, 3–5 lines wide, acute, the lower ones narrowed at the base. Axillary heads simple, sessile, about one third of an inch in diameter; terminal heads mostly composed of two or three closely aggregated smaller heads. Lateral bracts about one-fifth longer than the calyx, with a narrow serrated crest above the middle. Stamineal tube entire to the summit; antheriferous lobes very minute; the lateral ones liguliform, much shorter than the anthers. Style about as long as the ovary; stigmas cylindrical, acute, half as long as the style. This species occurs only in the collections of Wright and Thurber, and does not appear to have been hitherto described. It seems to be allied to G. agrestis, *Mart.*

GOMPHRENA CÆSPITOSA (n. sp.:) humilis; caulibus cæspitosis; caudice lignoso; foliis obovatis obtusis subsericeo-villosis, radicalibus basi attenuatis, caulinis binis subsessilibus; pedunculis brevibus simplicibus; capitulis terminalibus solitariis ovatis; floribus nitidis flavescenti-albis; calyce bracteis ecristulatis paullo longiore; sepalis obtusiusculis uninerviis villosissimis. Gravelly plains near the Organ mountains, New Mexico; also at the Copper Mines and near Mimbres, April—May; *Bigelow, Wright*, (No. 1572.) Cook's Springs, New Mexico; *Thurber.* Rio de Santa Cruz, &c., Sonora; *Schott, Capt. E. K. Smith* .No. 1753, Wright, is a glabrescent state of this species. Stem or rather caudex 1–2 inches long, thick and somewhat ligneous, throwing

up a tuft of spreading or decumbent branches, which are 1½–4 inches long, and, when young, are densely clothed with a whitish pubescence. Radical leaves an inch or more in length, exclusive of the petiole, which is about an inch long; in the young state pubescent, with almost silky white hairs, but finally smoothish; cauline leaves similar, but with very short petioles, or nearly sessile. Heads about three-fourths of an inch long. Bracts very acute, thin and hyaline, entirely without a keel. Sepals somewhat rigid, extremely villous. Filaments united nearly to the summit; the lateral processes often reduced to small teeth, or sometimes almost wanting. Style deeply bifid.

Frœlichia Floridana, *Moq. l. c. p.* 420. Oplotheca Floridana, *Nutt. Gen. p.* 79; *Bart. Fl. N. Amer. t.* 59. On the Limpio and near Van Horn's Wells; *Bigelow.* Presidio del Norte; *Parry.* May—July.

Frœlichia Drummondii, *Moq. l. c.* Rio Coleto and near El Paso; *Thurber.* Sandy beach of the lower Rio Grande, April; *Schott.* Too near the preceding species, which, again, seems to be scarcely distinct from F. interrupta.

Frœlichia gracilis, *Moq. l. c.* Oplotheca gracilis, *Hook. Ic. sub t.* 256. Alluvions of the Rio Grande and at the Copper Mines, August—October; *Bigelow.* On the Guadalupe river, Texas; *Schott.* Chihuahua and Sonora; *Thurber.* A smaller species than the two preceding.

CHENOPODIACEÆ.

Teloxys cornuta, *Torr. Bot. Whippl. Exped. p.* 129. Hills and rocky places near Santa Rita del Cobra, October, (in fruit;) *Bigelow.* Some of the specimens are nearly two feet high.

Chenopodium album, *Linn; Moq. l. c. p.* 71. Doña Ana, New Mexico, Sonora and Chihuahua, April—July; *Thurber.* (Nos. 1731 and 1732, *Wright.*)

Chenopodium anthelminticum, *Linn.; Moq. in DC. Prodr.* 13, *pars* 2, *p.* 73. Various places New Mexico and western Texas; probably introduced.

Blitum Bonus-Henricus, *Reich.; Moq. in DC. l. c. p.* 68. In fertile grassy places near San Luis Rey; *Parry;* and near San Diego, California; *Thurber.* Doubtless introduced from Europe.

Obione canescens, *Moq. in DC. Prodr.* 13, *pars* 2, *p.* 212. Abundant at the foot of San Diego Bay, California; *Parry.* It forms dense thickets, 3–5 feet high.

Obione hymenelytra (*Torr. in Bot. Whippl. Exped. p.* 129, *t.* 20): caule fruticoso ramosissimo, ramis inermibus teretibus; foliis subdeltoideo-orbiculatis vel basi truncatis grosse acuteque dentatis dense lepidoto-incanis; floribus dioicis; bracteis reniformi-orbiculatis membranaceis integerrimis basi coalitis, disco nudo. Desert of the Colorado and on the Lower Gila, in saline soils; *Schott.* A shrub apparently 2–3 feet high, the branches very crooked and interlaced. Leaves 1–1½ inch in diameter, the margin cut into coarse, more or less acute salient teeth. Male flowers in dense glomerules, which are collected into axillary and terminal paniculate spikes. Fructiferous bracts more than one-third of an inch in diameter, reticulately veined, only united at the base, the short pedicel tumid and spongy.

Obione argentea, *Moq. Chenop.* 76, *& in DC. Prodr. l. c. p.* 115. Atriplex argentea, *Nutt. Gen.* 1, *p.* 198. Valley of the Pecos, September; *Bigelow.* Annual; stem much branched and at length diffuse, the branches angular and flexuous, nearly smooth. Leaves triangular or somewhat deltoid, subsessile, often nearly entire but usually more or less toothed, membranaceous. Male flowers in glomerated interrupted terminal spikes; female flowers in sessile axillary

clusters. Fructiferous bracts pedicellate, suborbicular, the margin acutely and often irregularly toothed, disk naked, or sometimes cristate with foliaceous appendages.

Obione confertifolia, *Torr. & Frém. in Frém. 2d Rep. p.* 318. Mountains near Laguna de Santa Maria, Chihuahua, April; *Bigelow.* Only the male plant was collected.

Obione radiata (n. sp.): caule erecto? herbaceo ramoso, ramis inermibus; foliis obovato-oblongis obtusissimis mucronulatis membranaceis integerrimis vel obsolete repando-dentatis basi attenuatis utrinque lepidotis canescentibus; glomerulis fœmineis axillaribus; bracteis sessilibus orbiculatis infra mediam coalitis margine radiatim denticulatis, disco inappendiculato carinulato. Alluvions of the Gila, Sonora, May; *Schott.* Stem apparently annual and about a span long; the branches flexuous. Leaves 8–12 lines long and 3–5 lines broad. Male flowers in small terminal spikes; female flowers in small axillary clusters. Fructiferous bracts almost exactly orbicular, very flat, 1½ line in diameter, neatly cut around the margin into very short acute teeth, the disk marked with a central, longitudinal, slightly prominent keel. We cannot identify this plant with any of the species of Obione described by Moquin; it is most nearly related to the following:

Obione elegans, *Moq. l. c. p.* 113, var.? radiata. Rio Sta. Murin, Chihuahua, August; *Thurber.* Western Texas, (No. 571 and 1743.) We are not confident as to our determination of this plant. Our specimens are certainly annual; the leaves are rather obtuse than acute; the fructiferous bracts are scarcely pedicellate and they are united to the middle. The margin is cut into strong acute radiating teeth.

Obione elegans, var.? tuberculosa: foliis repando-denticulatis; bracteis orbiculatis, margine dentatis, disco tumido cartilagineo medio tuberculoso-dentatis. Western Texas; *Wright.* Plant about a foot high, apparently annual. Differs from the last, chiefly in the tumid fructiferous bracts, the disks of which, on each side of the median line, are furnished with 2–3 acute tubercles.

Obione acanthocarpa (n. sp.): caule suffruticoso erecto ramoso, ramis subteretibus inermibus; foliis deltoideo-lanceolatis spathulatisve integris vel repando-dentatis densissime lepidotis incanis floribus dioicis; glomerulis interrupte spicatis, spicis masculis paniculatis terminalibus; bracteis demum ultra medium in thecam sessilem subglobosam subcartilagineam undique spinosam coalitis. Plains between the Burro mountains; September, *Bigelow,* (in fruit.) On the Rio Grande, below Presidio del Norte; *Parry.* Near the Piloncilla, Sonora, September; *Thurber.* (No. 1739; *Wright.* His No. 1737 seems to be a slender form of the same.) Plant 1–2 feet high, much branching from the ground. Leaves somewhat persistent, about an inch long, often somewhat hastate at the base, usually somewhat repand-dentate or denticulate. Fertile flowers glomerate in the upper axils, forming a kind of leafy panicle. Male spikes paniculate, nearly naked. Fructiferous bracts indurated, covered with long flat or compressed rigid processes which resemble spines. Near Fort Yuma, California, Major Thomas collected an Obione which appears to be a variety of this species. It sometimes attains the height of 6–10 feet. The leaves are deltoid-ovate, very obtuse and somewhat undulate. Only the male plant was found. It is the same as O. Barclayana of Durand and Hilgard's Report of Williamson's Expedition, but apparently not of Bentham.

Obione canescens, *Moq. in DC. Prodr.* 13, *pars* 2, *p.* 212. Abundant at the foot of San Diego Bay, California; *Parry.* Valley of the Rio Grande, from El Paso to Eagle Pass; also on the Gila. (No. 1740 and 1741, *Wright.*) A variety with smaller, ovate or obovate leaves was found on the Burro mountains by *Dr. Bigelow;* and on the Gila by *Mr. Thurber.* It is the same

as Wright's No. 1738, and Berlandier's No. 1346; the latter from San Luis Potosi. Gregg found it also at Cerros Bravos, Mexico.

OBIONE OCCIDENTALIS, *Moq. l. c.* Near the Copper Mines and at Santa Barbara; also on the San Pedro; *Bigelow.* On the Pecos and in Chihuahua; *Thurber.* El Paso; *Wright.* Remarkable for its large broadly 4-winged fruit. These wings are either entire or more or less deeply toothed; rarely cut into narrow lobes. The bracts adhere nearly to the summit, while in O. canescens they are united only toward the base.

OBIONE OCCIDENTALIS, var. ANGUSTIFOLIA: foliis angusto-linearibus vel lanceolato-linearibus. Valley of the Rio Grande, from El Paso to 40 miles below San Elceario; *Bigelow, Wright.* On the Gila; *Thurber.* (No. 1742, *Wright.*) Gregg found it in various places in New Mexico, where it is called *Chanuzo.* It seems to be closely related to O. linifolia, *Moq.*

EUROTIA LANATA, *Moq. Chenop. p.* 81; *Torr. & Gray in Bot. Pope's Rep. p.* 124. Diotis lanata; *Pursh, Fl.* 2, *p.* 602. Hills near the Copper Mines, New Mexico.

CORISPERMUM HYSSOPIFOLIUM, *Linn.; Moq. l. c. p.* 141. Sandhills, Chihuahua; *Thurber.* Alluvions of the Rio Grande; *Schott, Parry.*

ARTHROCNEMUM MACROSTACHYUM, *A. Bunge in Linnæa,* 28, *p.* 573. Arthrocnemum fruticosum, γ macrostachyum; *Moq. Chenop. p.* 111, *& in DC. l. c. p.* 151. Salt marshes between Comanches and Leon Springs, November; *Schott.* Rio Pecos; *Thurber.* Santa Rosa, Cohahuila; *Bigelow.* Plant 1–2 feet or more in height. (No. 1745, *Wright.*) According to Bunge (*l. c.*) Moquin and Fenzl have not distinguished, by reliable characters, Arthrocnemum from Salicornia. To the former genus he refers those species in which the seed is albuminous, and the embryo curved; in the latter those which have exalbuminous seeds and a conduplicate embryo.

SALICORNIA MUCRONATA, *Lagasca Pl. Barill. ex Moq. Chenop. p.* 115. On the beach at Brazos Santiago, May; *Schott.* This plant is shrubby and apparently as tall as the preceding species; the specimen being only a branch, and more than a foot long. I am now inclined to regard it as distinct from S. mucronata of Bigelow, which is a humble annual with thicker spikes, and the flowers more deeply immersed in depressions of the rachis. The latter may be called S. Bigelovii.

SUÆDA MARITIMA, *Dumort.; Torr. Fl. New York,* 2, *p.* 141. Saline soils, Leon Springs, September; *Bigelow.* Plant apparently 3–4 feet high.

SUÆDA FRUTICOSA (*Forsk.*) var.? MULTIFLORA, *Torr. Bot. Whippl. Exp. p.* 130. Sandy hills and ravines near Presidio del Norte, August; *Bigelow.* Rio Pecos; *Thurber.*

PHYTOLACCACEÆ.

RIVINA LÆVIS, *Linn.; Moq. l. c. p.* 11. R. portulacoides, *Nutt. Trans. Amer. Phil. Soc., n. ser.* 5, *p.* 167. Common in alluvions throughout the valley of the Rio Grande and its branches below El Paso; west to Cocospora, Sonora. (Nos. 1729 and 1730, *Wright.*) The branches and leaves are sometimes more or less pubescent.

PHYTOLACCA DECANDRA, *Linn.; Moq. l. c. p.* 32. Mouth of the Rojo San Felipe, September; *Schott.* The specimens seem to belong to a depauperate form of the plant. The racemes are only 6–10-flowered.

LAURACEÆ.

OREODAPHNE CALIFORNICA, *Nees. Syst. Laur. p.* 463; *Torr. Bot. Whipple's Rep., p.* 133. In various parts of California, especially in mountainous districts; *Parry, Thurber.* Besides the

popular names of the plant mentioned in the report here quoted, it is called Sassafras-Laurel, Cajeput Tree, and California Olive. The fruit varies from ovate or obovate to nearly globose.

SANTALACEÆ.

COMANDRA UMBELLATA, *Nutt. Gen.* 1, *p.* 157. Var. ANGUSTIFOLIA. C. pallida, β angustifolia, *Alph. DC. Prodr.* 14, *p.* 637. Hueco mountains and at the Copper Mines, New Mexico; also in western Texas, Chihuahua, and Sonora, April. (Nos. 783 and 784, *Wright.*) We have specimens that connect this variety with the ordinary form of the plant.

LORANTHACEÆ.

PHORADENDRON PAUCIFLORUM, *Torr. in Whipple's Rep. p.* 134. Sierra del Pajarito, Sonora; growing on Juniperus; *Schott.* Yanos; *Capt. E. K. Smith.*

PHORADENDRON CALIFORNICUM, *Nutt. in Jour. Acad. Phil.* (*n. ser.*) 1, *p.* 185; *Torr. l. c.* On cotton-wood (Populus monilifera) along the lower Colorado of California, March and February; *Schott.* On mesquit trees (Algarobia glandulosa), borders of the Gila and near Eagle Pass, western Texas; *Parry, Schott.* Fructiferous spikes variable in length.

PHORADENDRON FLAVESCENS, *Nutt. l. c.* var. GLABRIUSCULUM, *Engelm. in Gray, Pl. Lindh.* 2, *p.* 212. Common in the valley of the Rio Grande, on Algarobia (with male flowers only); *Schott.* On the Mimbres, in fruit; *Bigelow.* The male spikes vary considerably in length and in the number of their joints. Sometimes they exceed the leaves. The axis between the joints is thickly covered with flowers, sometimes to the number of 60 or more.

Var. PUBESCENS, *Engelm. l. c.* Howard's Springs; *Bigelow.*

PHORADENDRON JUNIPERINUM, *Engelm. in Gray, Pl. Fendl. p.* 59. Near the Copper Mines, New Mexico; *Bigelow.* Howard's Springs; *Parry.*

ARCEUTHOBIUM CAMPYLOPODUM, *Engelm. l. c.* On pine trees near Monterey, California; *Parry.* The fertile plant only was collected.

EUPHORBIACEÆ.

The genus Euphorbia has been kindly elaborated for this report by my friend George Engelmann, M. D.

§ I. ANISOPHYLLUM.

EUPHORBIA PETALOIDEA: patulo-ramosissima; foliis oblongis oblongo-linearibus linearibusve retusis mucronatis; glandulis albo-appendiculatis; seminibus lævibus.

α. NICOLLETII: foliis stylisque brevioribus; anthodiis cymulosis; seminibus ovatis.

β. INTERMEDIA: foliis angustioribus; stylis longioribus; anthodiis cymulosis.

γ. NUTTALLII: foliis linearibus; anthodiis alaribus; appendiculis orbiculatis; stylis elongatis, seminibus subglobosis. E. arenaria, *Nutt. Pl. Arkans. p.* 171, *non H. B. K.*

δ. FLAGELLIFORMIS: priori similis, sed appendiculi minimi, styli breves. Of these varieties *α* and *β* have not been found within the districts explored by the Boundary Commission, but they probably occur there. The var. *γ* is common in Texas. Wright's 1826, belongs to var. *δ*, a New Mexican form.

EUPHORBIA SERPENS, *H. B. K.* E. herniarioides, *Nutt. l. c. p.* 171. In the southwestern parts

of North America (abundant on the Mexican boundary line) and throughout Central and South America, but not in the eastern States. E. microphylla, *Roth*, from India, is the same plant.

EUPHORBIA REVOLUTA (nov. spec.): erecto-patula; foliis linearibus revolutis obtusis basi subæqualibus, stipulis setaceis; anthodiis alaribus; glandulis anguste appendiculatis; stylis recurvis apice bifidis; capsula acute angulata, seminibus angustis acute angulatis transverse rugosis. (Gravelly hills near Rock creek; *Bigelow*. On the Rio Grande; *Wright*, No. 1830.) New Mexico; *Fendler*, No. 789. Very slender, 4–5 inches high; leaves 6–10 lines long and ½ line wide. Habit like a small slender E. petaloidea, but styles and seeds very different.

EUPHORBIA POLYCARPA, *Benth. Bot. Sulph. p.* 50. Dry soils near San Diego, California; *Parry*, *Schott*. Banks of the Gila; *Major Emory*. Sonora; *Wright*, No. 1854. This is a very variable plant, if all the forms which I refer to here really belong to it. Seeds smooth or undulate, appendages none, or small or large; plant smooth or pubescent, (and then always with short patulous hairs.) Collected by all the botanists from the upper Gila to San Diego. The only species of the section Anisophyllum which, so far as I know, has both smooth and pubescent forms, with the exception of E. hypericifolia.

EUPHORBIA ARIZONICA, (nov. spec.): erecto-patula; foliis e basi lata subæquali ovatis obtusis pilosis; stipulis inconspicuis; anthodiis alaribus longius pedunculatis; appendicibus glandula purpurea multo majoribus obovatis tubo turbinato postice fisso brevioribus; stylis erectis ad medium bifidis ovario puberulo longioribus, stigmatibus filiformibus; capsula pilosa; seminibus rugoso-verrucosis ad angulos acutos crenulatis. Sierra Yanos, Sonora, July; *Schott*. Stems 4–5 inches high; leaves 3–4 lines long, 2½–3 lines wide. Seed very small, involucrum with the appendage 1½ line in diameter.

EUPHORBIA PEDICULIFERA (nov. spec.): procumbens, cinereo-pubescens; foliis ovatis obtusiusculis; stipulis e basi lata lanceolatis; glomerulis parvifloris in ramulis alternis terminalibus; involucris hemisphæricis; glandulis magnis; appendicibus transversis crenatis; stylis patulis pubescentibus ad basin fere bifidis; stigmatibus divaricatis; capsula acute angulata pubescente, seminibus compressis angulatis sulcis 4 profundis transverse incisis. Sonora; *Wright*, (No. 1848,) *Schott*. Spreading 6–12 inches. Leaves 3–4 lines long, oblique. Involucrum large. Seeds 0.7 line long, deeply 5-lobed, similar to some insects.

EUPHORBIA FENDLERI, *Torr. & Gray, Bot. Pope's Rep. p.* 19. E. rupicola, *Scheele in Linnæa*, 22, *p.* 153, *non Boiss.* Common in New Mexico and Western Texas; *Lindheimer*, *Wright*, *Bigelow*. Sonora; *Thurber*. Variable in the form of the leaves and the shape or presence of the appendages.

EUPHORBIA ALBOMARGINATA, *Torr. & Gray, l. c. p.* 18. Common in the whole region between western Texas and the Great Colorado, and southward into Mexico. It is No. 330 of Drummond's second Texan Collection.

EUPHORBIA CINERASCENS (nov. spec.): erecto-patula s. subdecumbens, pubescenti-canescens; foliis e basi lata obliqua ovatis s. suborbiculatis obtusis supra glabratis; stipulis lanceolatis minutis mox deciduis; glomerulis lateralibus; involucris canis; glandulis (plerumque purpureis) angustissimis marginatis; stylis brevibus pilosis; capsula acute angulata cana; seminibus ovatis acute angulatis læviusculis. On the Rio Grande; *Wright*. Chihuahua and Sonora; *Thurber*. Bishop's Hill, near Monterey, Mexico; *Gregg*.

β. APPENDICULATA: foliis utrumque cinereis; appendicibus majoribus truncatis crenulatis; stigmatibus longioribus. San Felipe, California; *Dr. Le Conte*, *Thurber*; and San Gabriel, *Bigelow*. Stem 4–6 inches high; rounded leaves often tawny red, 1½–2 lines long; flowers

few. Mr. Thurber informs us that this plant is called *Yerba de la Golondrina* in Sonora. The Mexicans believe it to be a certain cure for the bite of a rattlesnake and other poisonous animals The bruised fresh plant or the dried, steeped in wine, is applied to the wound. A tincture of the plant is sometimes kept in the apothecarys' shops of that country. According to Dr. Gregg, the name Golondrina is applied to all the prostrate Euphorbiæ.

EUPHORBIA INÆQUILATERA, *Sonder in Linnæa*, 23, *p.* 105. I cannot distinguish from this plant of the Cape of Good Hope a species of the plains of Nebraska, Kansas, and Texas, and which extends into New Mexico, California, and Oregon. There it has been collected since the explorations of *Nicollet* and *Frémont* by almost every traveller, (e. g., *Fendler*, 791, 795, 803; *Wright*, 666, 1823, (in part,) 1846.) The same plant has been sent from Florida by *Blodgett* and *Chapman*, is found on the West India Islands, is undoubtedly the E. Nilagirica, *Miq.*, of India, and has also been observed in New Holland; but it seems unknown in other States east of the Mississippi.

EUPHORBIA GLYPTOSPERMA (nov. spec.): erecto patula seu demum decumbens; foliis e basi valde obliqua (latere inferiore producta) æquilatis oblongis s. oblongo-linearibus obtusis versus apicem subserratis s. integriusculus; stipulis setaceis laciniatis, anthodiis alaribus demum in glomerulos laxos laterales confertis; appendiculis brevibus integris seu crenatis; stylis brevibus apice bilobis, stigmatibus subglobosis; seminibus ovatis argute rugosis ad angulos acutos crenatis. E. polygonifolia, *Hook. Fl. Bor. Am.* fide spec. auctoris *non Linn.*

β. TENERRIMA: foliis parvulis angustis apice vix crenulatis; involucri minuti glandulis vix seu non appendiculatis. On the Rio Grande; also on the Arkansas, and extending to the upper Missouri. (No. 1853, 1855, and 1856, *Wright.*) From a few inches to a foot high. The larger northern forms have leaves 3 to 6 lines long and 1 to 2 lines wide. In β the leaves are 1 to 3 lines long and ½ to 1 line wide; involucrum in the latter only 0.3 line long. Seed very sharply cross-ribbed, similar to that of *E. prostrata*, and notched at the angles.

EUPHORBIA STICTOSPORA (nov. spec.): erecto-patula, foliis e basi obliqua subcordata orbiculatis seu ovatis argute serratis supra subnudis; stipulis subulatis ciliatis; glomerulis lateralibus sessilibus; glandulis angustis appendiculatis; stylis ovario pubero brevioribus patulis indivisis; stigmatibus 3 capitatis; capsula puberula; seminibus angustis acute angulatis exsculpto-punctatis. From Kansas (*Fendler*, 798,) to Santa Fé (*Fendler*, 797) and Doña Ana, (*Wright*. 59,) New Mexico, and Corallitas, Chihuahua; *Thurber.* Stem 3–6 inches high. Leaves 2–4 lines long; apparently near *E. prostrata*, but styles and seeds very different.

EUPHORBIA PROSTRATA, *Ait.* This variable and often mistaken species is found from western Louisiana (*Dr. Hale*) to Texas; (*Lindheimer*, 533;) (*Berlandier*, 1100, 2530;) (*Wright*, 1848 in part, 1855 in part.) It seems to be a common plant in the West India islands, Mexico, and South America. It occurs in Africa and India. *Euphorbia tenella*, H. B. K., and *E. callibrichoides*, H. B. K., are forms of the same species, which can always be recognized by the ciliate angles of the capsule and the sharply rugose seeds, notched at the angles.

EUPHORBIA DIOICA, *H. B. K.* (E. anceps, *Benth.* E. callibrichoides; *Schauer*, etc.,) a common and very variable plant of Mexico, Central America, and the West India islands, has been collected by *Dr. Antisell* on the upper Rio Grande.

Var.? INDIVISA, distinguished by the annual root, the less coriaceous, less oblique and less distichous leaves, the more scattered involucra and the undivided styles; has been found near the Copper Mines, New Mexico, by Mr. Wright, (No. 1845) and in Sonora by Mr. Thurber, (No. 963.)

Euphorbia Serrula (nov. spec.): patula seu decumbens; caule patenter piloso; foliis e basi valde obliquo obtusiuscula seu subcordata oblongis sæpe falcatis obtusis argute grosseque serratis, subtus pilosis; stipulis lanceolatis laciniatis; glomerulis lateralibus appendicibus angustis integris seu crenulatis; stylis ovario glabro brevioribus patulis ad basis fere bifidis; seminibus ovatis lævibus costato-angulatis. Western Texas and New Mexico. (No. 658, 1843 and 1844, *Wright*. No. 796 and 804, *Fendler*.) Stems 4-6 inches long. Leaves 3–5 lines long, 1–3 lines broad, sharply and coarsely serrate; seeds larger than in all the foregoing species, 0.8 line long, remarkably angled.

Euphorbia villifera, *Scheele in Linnæa* 22, *p.* 153. Western Texas; *Berlandier*, 2084; *Lindheimer*, 530; *Wright*, *Thurber*. In various parts of Mexico; *Gregg*. Root annual, stems erect, often a foot high.

Euphorbia hypericifolia, *Linn. Sp.* 1, *p.* 454. New Mexico; *Wright*. (No. 1842 in part.) Chihuahua; *Thurber*. The true Linnæan plant probably comes from the West Indies and other tropical countries, and has also been sent from Florida by Dr. Chapman. It is distinguished by smaller anthodia, generally disposed in denser clusters, smaller capsules and smaller paler seeds. The common North American form, which has also been collected abundantly along the boundary, has larger and more scattered anthodia, larger capsules and larger blackish seeds, and may be distinguished as var. *communis*, as it seems to be the more common form throughout the warmer countries around the whole globe.

Euphorbia pilulifera, *Linn.* β discolor: diffusa; foliis e basi valde obliqua ovatis subrhomboideis acutiusculus serratis, purpureo-maculatis, stipulis subulatis, capsula parvula pilosa, seminibus minutis ovatis acutis undulato-tuberculatis. Sonora; *Thurber*. *Wright*, No. 1842, in part. Mr. *Blodgett* found it in Florida. Stems ½–1 foot long. Leaves 1–1½ inch long; differs in shape and color of leaves from the usual forms of E. pilulifera; hair of the stem as in all forms of this species yellow and jointed; involucre only ½ line long; heads 3–4 lines in diameter; seed scarcely more than ⅓ line long.

Euphorbia capitellata (nov. spec.): annua, erectiuscula seu demum diffusa; caulibus elongatis puberulis; foliis e basi valde obliqua oblongo linearibus subnudis argute serrulatis mucronatis; stipulis lanceolatis laceris; glomerulis densifloris terminalibus fere aphyllis; involucri glandulis longius stipitatis, appendiculis orbiculatis s. late obovatis integris; stylis ovario hirto longioribus ad medium bifidis; stigmatibus filiformibus divaricatis; capsula puberula; seminibus ovatis acutatis angulatis rugoso-tuberculatis. Valleys at San Bernardino, Sonora; *Wright*, (No. 1,849.) Stems 6–10 inches long; leaves 6–8 lines long, 2 lines wide; heads white, showy, 4–6 lines in diameter.

Euphorbia pycnanthema (nov. spec.): perennis, erecto patula, canescente-pubescens; foliis e basi lata obliqua cordata ovatis s. oblongis obtusiusculis sæpe mucronulatis integris s. subserrulatis, scabris; stipulis lanceolatis fissis; glomerulis terminalibus multifloris quasi involucratis; involucris pilosulis (primariis) late orbiculato-appendiculatis seu (secundariis) subnudis; stylis fere ad basis fissis patulis; stigmatibus divaricatis clavellatis; capsula subglobosa pubescente; seminibus acute angulatis transverse rugulosis punctatisque. Mountain sides near Lake Santa Maria, Chihuahua; *Wright*. Numerous stems 6 inches high, from a thick ligneous root; leaves 4–5 lines long. General appearance of a small labiate plant with terminal involucrate heads. similar in many respects to the last, but more erect, more hairy, leaves shorter. Remarkable for the different involucres on the same head, reminding one of Hydrangea or some Umbellifera.

Euphorbia lata. E. dilatata, *Torr. & Gray, Bot. Pope's Rep. p.* 19; non *Hochst. in Richard.*

Flor. Abyssin. Western Texas, San Pedro; *Wright*, No. 1841. On the Cimaron; *Fendler*, No. 794. Eagle Springs; *Bigelow.*

EUPHORBIA ACUTA (nov. spec.): perennis, multicaulis, erecta, foliosa, hirsuta; foliis e basi obtusa subæquali lanceolatis acutatis cartilagineo-mucronatis supra nudis; stipulis filiformibus mox deciduis; anthodiis versus caulis apicem alaribus s. pseudoaxillaribus sparsis; involucris hemisphæricis appendicibus truncatis crenatis lobatisve; stylis patulis ultra medium bilobis, ovario cano longioribus capsula cana; seminibus subcubicis acutis acute angulatis lævibus. Stony prairies western Texas, along the San Pedro and Pecos rivers, &c.; *Bigelow, Schott.* (No. 1739 and 1749, *Wright.*) Stems ½–1 foot high; stiff rigid, leaves 6–10 lines long, 3–6 lines wide, well characterized by the very acute point; seeds 1 line long.

EUPHORBIA ANGUSTA (nov. spec.): perennis, erecta, elatior, rigida; foliis lanceolato-linearibus basi acuta subæqualibus acutis integris demum glabratis; stipulis subulatis minutis deciduis; anthodiis pseudoaxillaribus sparsis; appendicibus truncatis crenatis sæpe bilobis erectis; stylis brevibus erectis apice bilobis; capsula cana acutangula; seminibus ovato-cubicis acutangulis transverse rugosis foveolatis. In rocky places western Texas; *Lindheimer*, No. 694; *Wright*, No. 1828. On the Rio Grande; *Schott.* Erect, 6–15 inches high; several stems form a large black perennial root with few or numerous elongated branches; leaves few, 6–15 lines long, 1–2 lines wide. Seeds 0.8 line long, strongly marked.

EUPHORBIA FLORIDA (nov. spec.): annua, erecta, patulo-ramosa, glaberrima; foliis lanceolato-linearibus seu linearibus in petiolis attenuatis serrulatis mucronatis; stipulis lineari-subulatis sæpe 2–3-fidis; involucris alaribus in cymulas terminales laxas congestis; pedunculis petiolum longe superantibus; lobis involucri ovatis acutis seu acuminatis ciliatis seu rarius laceris; appendicibus magnis (involucro ipso majoribus) orbiculatis seu ovatis petaloideis integris; stylis ovarium æquantibus seu superantibus basi coalitis ad medium seu ultra bifidis; stigmatibus filiformibus; capsula obtuse angulata; seminibus subcubicis acute angulatis lævibus transverse 2-costatis. Sonora; *Wright*, (No. 1829,) *Thurber, Schott.* Stem ½–1 foot high; leaves 12–18 lines long, 1–1½ line broad; margin revolute, and serratures thereby often invisible. Involucre with large bright white appendages, 3 lines in diameter.

EUPHORBIA TRACHYSPERMA (nov. spec.): annua, erecta, glaberrima; foliis e basi subæquali obtusa seu angustata oblongo-lanceolatis serratis mucronatis; stipulis filiformibus seu subulatis setaceo-fissis; anthodiis alaribus demum in cymulas paucifloras terminales s. laterales confertis; appendicibus angustis albis; stylis ultra medium bifidis; capsula obtusangula; seminibus subcubicis faciebus læviusculis, angulis acutis crenatis asperatis. San Pedro; Sonora, *Wright*, No. 1832. Slender, erect, about 1 foot high, branches erect, few; leaves 9–12 lines long, 2–3 lines broad; seed 1 line long.

EUPHORBIA EXSTIPULATA (nov. spec.): annua, erecto-patula, ramosa, glabriuscula seu minute sparsimque aspera; foliis lanceolatis seu lanceolato-linearibus argute serratis basi æquali in petiolem brevem angustatis; stipulis subnullis s. glanduliformibus: anthodiis alaribus solitariis; pedunculis petiolo brevioribus; appendicibus anticis plerumque 2-lobatis, posticis majoribus 4-lobatis; stylis ovarium ad angulos scabrum æquantibus, profunde bipartitis; stigmatibus filiformibus; seminibus magnis subcubicis verrucosis et transverse 2–3-costatis. Western Texas; *Wright,* (1833 and 1838.) New Mexico; *Fendler*, (No. 790.) Sonora; *Thurber, Bigelow, Parry.* Stem about 6 inches high; leaves about 1 inch long, 1–2 rarely 3 lines wide, sometimes not absolutely opposite, but a little separate; seed 1 line long, with thick cross-ribs. A transition form to the next sections.

§ II. ZYGOPHYLLEÆ.

Euphorbia hexagona, *Nutt. in Spreng. Syst.* 3, *p.* 791. E. heterantha, *Nutt. in Trans. Amer. Phil. Soc.* (*n. ser.*) 5, *p.* 173. Rio Coleto, Texas; *Thurber.* "Many years ago Mr. Nuttall gave me specimens of this plant, named E. hexagona. Part of these were sent to Sprengel, who first published a description of the species in the work quoted. Eight years afterwards Mr. N. described the plant under another name. It is remarkable for being polygamous; most of the involucres containing only male flowers."—*Torrey, MSS.*

Euphorbia bilobata (nov. spec): annua, erecta, gracilis; foliis oppositis breviter petiolatis lanceolato-linearibus acutatis integris glabriusculis, rameis angustioribus; anthodiis alaribus campanulatis; glandulis bilobis, appendiculis binis lanceolatis seu abbreviatis; stylis vix basi connatis ad medium bilobis; stigmatibus erectis subteretibus; capsula læviuscula, seminibus ovatis acutis angulato-tuberculatis. Near the Copper Mines, New Mexico; *Bigelow.* Eastern Sonora; *Wright,* (No. 1831.) Stems 6–15 inches high; leaves 10–15 lines long, 1–2 lines broad; seeds 0.8 line long, strongly tuberculate and almost angular. Glands remarkable and very constant in shape; appendages white. Near E. hexagona; distinguished by the acuter more uniform leaves, bilobed glands, terete stigmata and smaller tuberculate seeds.

Euphorbia bifurcata (nov. spec.): glabra; caule erecto dichotomo; foliis oppositis ovatis seu obovatis in petiolem gracilem subæquilongum angustatis argute serratis obtusis basi glanduloso stipulatis; anthodiis alaribus breviter pedunculatis; lobis 5 ovatis truncatis fimbriato-multifidis; glandula singula cyathiformi late albo-appendiculata, appendice transverso emarginato; stylis basi coalitis ad medium bifidis, stigmatibus filiformibus. Moist places, Valley of the Limpio, July; *Bigelow.* Over a foot high; leaves 1 inch long, ½ inch wide; petiole a little shorter than leaf.

§ III. CYATHOPHORÆ.

Euphorbia dentata, *Michx.*; β rigidia: humilior rigida; foliis parvis coriaceis reticulato-venosis scabris margine revolutis. Head of San Pedro river; *Wright.* (No. 1837.) Near Monterey, Mexico; *Dr. Edwards.* γ. cuphosperma: erecta, stricta, dentata seu parce pilosa; foliis lanceolatis seu lineari-lanceolatis elongatis subdentatis; capsulis glabris seu pilosis; seminibus majoribus tuberculato-angulatis. Copper Mines, New Mexico; *Wright,* (No. 1834,) to Sonora; *Schott.* Ojo de Gabilari, Chihuahua; *Thurber.*

Euphorbia heterophylla, *Linn.* (E. cyathophora, *Murr.*) Var. graminifolia: foliis angusto-linearibus. Crevices of rocks and dry beds of rivers. Rio San Pedro, Texas; *Bigelow, Schott, Wright,* (No. 653.) South of El Paso; *Wright,* (No. 1835.)

Euphorbia barbellata, (nov. spec.): annua, erecta, glabriuscula; foliis sparsis linearibus seu lanceolato-linearibus seu ovatis lobatisque breviter petiolatis parce argute dentatis, subtus ad nervum medium parce pilosis, basi pilis longioribus confertis barbatis; foliis floralibus ovatis seu e basi dilatata elongatis, basi roseis; anthodiis glomeratis majusculis; glandula singula sessili lobis inciso-dentatis breviore; stylis brevibus erectis basi vix connatis ad medium bifidis. On the Rio Grande, near Eagle Pass; *Wright.* Rio Frio; *Bigelow.* Near E. heterophylla, but stouter, leaves very sharply serrate, involucre larger, styles shorter. Leaves 2–4 inches long, ½ or ¼ inch–1 or 2 lines wide. Beard of coarse hair at base of leaves very conspicuous.

Euphorbia colorata (nov. spec.): erecta, glaberrima; foliis breviter petiolatis sparsis patu-

lis elongato-linearibus revolutis integris ; foliis floralibus basi paullo dilatatis puniceis subinde circinatis ; glandulis 1–2 stipitatis cyathiformibus compressis margine revoluto sæpe crenulatis involucri lobos laciniatos coloratos superantibus ; stylis brevibus purpureis erectis longe connatis, apice bifidis, stigmatibus acutis demum recurvis. Dry arroyas, Aqua Zarco, Sonora, May ; and Santa Cruz, Sept. ; *Thurber, & Capt.E. K. Smith.* Specimens incomplete, nearly a foot high. Leaves 3–4 inches long, scarcely more than a line wide ; floral leaves shorter and about 2 lines wide, deep crimson. Distinguished from E. heterophylla by the narrow revolute leaves, etc. Margin of involucre and styles also purplish. Capsule glabrous and seeds tuberculate, as in the allied species.

EUPHORBIA RADIANS, *Benth. Pl. Hartweg, p.* 38. Plains between San Bernardino and Santa Cruz, Sonora, April ; *Capt. E. K. Smith.* Dry valleys near Buena Vista, Mexico ; *Dr. Gregg, Dr. Wislizenus* ; Mexico ; *Berlandier,* (No. 116 and 1375.) Root tuberous ; flowers in early spring, before the leafy shoots put out.

EUPHORBIA ERIANTHA, *Benth. Bot. Sulph. p.* 51. Sonora ; *Wright,* (No. 1841?)

§ IV. UMBELLATÆ.

EUPHORBIA WRIGHTII, *Torr. & Gray, Bot. Pope's Rep.* On the San Felipe and the San Pedro, western Texas ; *Wright,* (No. 1827.)

EUPHORBIA MULTICAULIS, (nov. spec.) : annua seu biennis, multicaulis, humilis, erecta, glabra ; foliis lineari-oblanceolatis acutis mucronatis serrulatis basi angustata sessilibus ; umbellis trifidis, ramis bifidis, bracteis lanceolatis, superioribus ovato-lanceolatis acutis ; involucri glandulis tranverse ovatis ; stylis basi liberis ad medium seu ultra bifidis ; capsulæ coccis dorso verrucosis ; seminibus lenticularibus lævibus fuscis. Sonora ; *Thurber.* About a dozen stems form a tapering root, 6 inches high, and with erect branches ; leaves 4–6 lines long, 1 line wide. Nearly allied to E. obtusata.

EUPHORBIA DICTYOSPERMA, *Fisch. & Mey. Ind. Sem. Petrop.* 1835. E. Arkansana, *Engelm. & Gray, Pl. Lindh.* 1, *p.* 26. Western Texas ; *Wright.* Var. MEXICANA : annua seu plerumque biennis, e basi erecto-ramoso ; foliis versus apicem crenato-serratis, lobis involucri subintegris ; ovarii coccis dorso solum verrucosis. Valley of the Nagas, Balson de Mapimi, *Dr. Gregg ;* western Texas ; *Wright,* (No. 1824.) γ LEIOCOCCA : capsulis lævibus seu vix hinc inde verruculosis. Texas ; *Drummond ;* II. 327. Near the Colorado, of Texas ; *Wright.*

EUPHORBIA TETRAPORA (nov. spec.): annua, erecta, glaberrima ; foliis cuneatis obtusis seu plerumque retusis emarginatis obcordatisve ; umbellis trifidis ; bracteis spathulatis seu superioribus orbiculatis basi truncatis ; cornubus involucri setaceis glandulam transversam æquantibus ; capsula dorso lævi ; seminibus facie ventrali 4-punctatis, dorsali læviusculis. Georgia ; *Boykin.* Louisiana ; *Hale.* Texas ; *Lindheimer, Wright.* Near E. Peplus as is the following species, but distinguished by the capsule and the seeds.

EUPHORBIA PEPLIDION (nov. spec.): annua, erecta, glaberrima, e basi ramosissima ; foliis confertis e basi angustata lineari-oblanceolatis obtusis ; umbellis 3-fidis dichotomis, bracteis lanceolatis acutis ; cornubus involucri glandulam ipsam æquantibus linearibus obtusis ; capsulæ coccis obtusis non alatis seminibus facie ventrali 2-sulcatis, dorsali punctato-exsculptis. Sandy soils, western Texas ; *Wright,* (No. 1823.) A small plant, 3–4 inches high, much branched from the base, of the habit of E. exigua. Seeds very similar to those of E. Peplus, 0.6 line long.

EUPHORBIA PEPLOIDES, *Nutt. in Trans. Amer. Phil. Soc.* (*n. ser.*) 5, *p.* 172, non *Gouan.* E. longicruris, *Scheele in Linnæa,* 22, *p.* 152. Western Texas ; *Wright,* (No. 1822 ;) *Lindheimer.*

(No. 529 and 698;) *Drummond*, (Coll. II, No. 331.) If E. peploides, *Gouan*, of Southern Europe should prove to be a distinct species, Scheele's name must stand for ours.

EUPHORBIA BRACHYCERA (nov. spec.): annua (?), multicaulis, ramosa, erecta, glaberrima; foliis in petiolum brevissimum angustatis lanceolatis seu lineari-lanceolatis acutis mucronatis; umbella 3-fida seu raro 4–5-fida; ramis pluries bifidis; bracteis inferioribus ovato-lanceolatis superioribus rhombeo-orbiculatis mucronatis; glandulis brevissime obtuseque cornutis; seminibus majusculis ovatis maculis irregularibus sæpe confluentibus leviter impressis. Western New Mexico; *Wright*, (No. 1821.) Many stems a foot high from a stout but apparently annual or biennial root; leaves 6–9 lines long, about 2 lines wide, patulous (not erect as in E. esulæformis) regularly lanceolate; upper part of the stem quite ramose; horns shorter than in any of our species, and sometimes almost rudimentary. Seed 1 line in length, similar to those of E. esulæformis, montana and Roemeriana.

EUPHORBIA MONTANA (nov. spec.): perennis, glaberrima; caulibus pluribus ascendentibus; foliis brevibus lanceolatis ovatis obovatis seu suborbiculatis acutis seu obtusis basi subinde subcordatis subsessilibus coriaceis glaucis; bracteis omnibus orbiculato-triangularibus, rarius subcordatis, superioribus subinde transverse ovato-triangularibus, omnibus cuspidatis; glandulis semilunatis, cornubus triangulatis brevibus; seminibus maculis plus minus impressis obscuris confluentibus undique notatis.

α GRACILIOR: caule tenuiori; foliis minoribus suborbiculatis obovatis seu lanceolatis.

β ROBUSTA: caule robustiore; foliis bracteisque majoribus crassioribus late ovatis seu ovato-cordatis.

The var. *α* in New Mexico; *Fendler*, (No. 786;) *Wright*, (No. 661, 1825.) San Luis Mountains, Sonora; *Capt. E. K. Smith*. Stems 4–8 inches high, leaves 2–3 lines long, in young specimens imbricate and red.

Var. *β*, on the upper Platte; *James, Nuttall, Frémont;* is a much stouter plant. Leaves 5–6 lines long, seeds larger. Dr. Wislizenus collected intermediate specimens near Albuquerque.

EUPHORBIA CRENULATA (nov. spec.): annua, erecta, glaberrima; foliis obovatis acutis in basin attenuatis minute crenulato-serrulatis mucronatis; umbella 5-fida, bracteis inferioribus late ovatis acutis, superioribus transversis, omnibus tenuiter serrulatis mucronatis; involucri glandulis longe tenuiterque cornutis; seminibus ovato-subglobosis cinereo-fuscis, maculis obscurioribus irregulariter confluentibus parum impressis. California; *Hartweg*, (1950.) Near Monterey; *Dr. Parry*. About 1–2 feet high, simple or branching above; leaves about 9 lines long, 5 lines broad, involucells broader and shorter; seed nearly a line long, unusually dark for this section. One of the very few peploid Euphorbiæ with crenate leaves.

EUPHORBIA ESULÆFORMIS, *S. Schauer in Linnæa*, 20, *p.* 729. Near the Copper Mines, New Mexico; *Wright*, (No. 1820;) *Bigelow*. On the Nueces, western Texas; *Wright*. San Luis Mountains, Sonora; *Capt. E. K. Smith*. This species seems to be scarcely distinguishable from the Mexican E. campestris; *Schlechtendal*. The original specimen of the latter, however, has longer and more slender horns; the seeds are wanting. The original specimen of E. esulæformis has similar but smaller seeds than our plant; the horns are also very short and incurved, the gland itself is truncate and notched. Euphorbia brachycera and E. montana come very near to this species.

Var? SUBDENTATA: foliis oblongo-linearibus brevissime petiolatis, inferioribus integris obtusis, superioribus versus apicem mucronatum dentatis, bracteis ovatis obtusis sæpe grosse dentatis.

San Francisco Spring, Sonora; *Parry*. The seeds were not ripe. This is, perhaps, a distinct species, but it must remain as a variety until more complete specimens are obtained.

EUPHORBIA LATHYRIS, *Linn.* is somewhat naturalized around Monterey, California. It was doubtless introduced by the Spaniards. We have it also from Saltillo, Mexico, where it was collected by Gregg.

§ V. SPARSIFLORÆ.

EUPHORBIA MISERA, *Benth. Bot. Sulph. p.* 51. Near the sea, San Diego, California; *Parry*. A straggling bush, about 3 feet high, abounding in a milky juice. Nuttall found it at Santa Barbara.

EUPHORBIA ANTISYPHILITICA, *Zucc. Acad. Mon.* 1, *p.* 292. Rocky and gravelly hills along the Rio Grande, from the Presidio del Norte to Laredo; *Bigelow, Schott*. Remarkable for its long terete nearly leafless branches, which resemble an Equisetum or an Ephedra.

PHYLLANTHUS CAROLINIANUS, *Walt. Fl. Car. p.* 228; *Ell. Sp.* 2, *p.* 661. P. obovatus, *Willd. Sp.* 4, *p.* 574. Maschalanthus obovatus, *Nutt. Trans. Amer. Phil. Soc.*, (*n. ser.*) *p.* 175. Southern Texas, common.

PHYLLANTHUS POLYGONOIDES, *Nutt. l. c.* P. Roemerianus, *Scheele in Linnæa*, 25, *p.* 583. Dry, sandy, and rocky places along the Rio Grande, from New Mexico to the Gulf, and westward in the Mexican States. (No. 1819, *Wright*; No. 337, Coll. II, *Drummond*.) This is certainly an annual, but late in the season, when the lower part of the stem and the root have become indurated and ligneous, it appears as if suffruticose.

PHYLLANTHUS ERICOIDES (n. sp.): fruticulosus, ramosissimus; foliis oblongo-lanceolatis imbricato-confertis subsessilibus glabris coriaceis mucronatis; floribus dioicis axillaribus solitariis brevi-pedicellatis; calycibus 5-(raro 6-) partitis. High mountains near the Rio Grande, in Chihuahua, October; *Parry*. Plant about a span high. Leaves about 2 lines long and scarcely more than half a line wide, acute, nearly sessile, with a pair of subulate persistent stipules at the base. Male flowers about a line long. Calyx deeply 5-parted; the segments oblong and somewhat obtuse. Petals none. Stamens 3; the filaments united into a column, at the base of which are 5 roundish glands. Female flowers rather larger than the male; the segments oblong, acute. Petals none. Ovary with 5 glands at the base; cells uniovulate. Styles 3, two-cleft; stigmas sub-globose. A well characterized species, remarkable for its very small crowded leaves.

LEPIDANTHUS PHYLLANTHOIDES, *Nutt. l. c.* Ravines on the San Pedro river, western Texas; *Bigelow, Schott*. (No. 636, *Wright*.) Mr. Nuttall's description of this very distinct genus can hardly be improved.

CROTON BERLANDIERI (n. sp.): suffruticosum; ramulis inferne nudis; foliis ovatis cordatis acuminatis membranaceis utrinque stellato-pubescentibus integerrimis vel obsolete denticulatis basi eglandulosis; floribus monoicis, masculis breviter racemosis 5-petalis 20–30-andris, fœmineis petaliferis; stylis bis bifidis; fructibus tomentosis demum glabratis. Neuvo Leon, December; *Thurber*. (Nos. 708 and 2125, *Berlandier*.) Plant apparently about a foot high. Leaves 1–2 inches long, 1–1½ inch wide; the petiole more than half the length of the lamina. Racemes terminating the branches, pedunculate. Male flowers 10–15, crowded on pedicels about a line long. Petals oblong. Stamens with 5 roundish glands at the base. Female flowers 1–2 at the base of the raceme. Calyx woolly, 5-parted; the segments oblong. Petals 5, very narrow, two-thirds the length of the calyx. Ovary woolly, with 5 glands at the base. Styles deeply

twice bifid. We have not been able to find any described species to which we can refer this Croton. It is a genuine species of the genus as characterized by Klotsch.

CROTON SONORÆ (n. sp.): fruticosum; foliis ovatis acutiusculis basi obtusis integris supra glabriusculis infra sparsim stellato-pubescentibus; floribus monoicis, masculis paucis sub-13-andris, petalis 5 calyce æqualibus; fœmineis solitariis vel binis, petalis 5 angustis calyce brevioribus; disco 5-lobo; stylis apice bifidis. Sierra de Nayos, July; *Schott.* A small shrub, much branched; the old branches smooth, younger ones furfuraceous. Leaves about an inch long, green both sides but rather paler underneath. Petals of the male flowers hairy at the base. Stamens with 5 spherical orange glands surrounding the receptacle. Female flowers one or two at the base of the short and few-flowered male raceme. Segments of the calyx rather acute. Petal linear-oblong, two-thirds of the length of the calyx. Disk surrounding the base of the ovary rather fleshy, 5-lobed. Styles rather stout, somewhat dilated and moderately bifid. Young fruit subglobose.

CROTON SUAVEOLENS (n. sp.): fruticosum; foliis ovatis obtusis basi rotundatis integerrimis eglandulosis utrinque densissime lanato-tomentosis; floribus monoicis, fœmineis solitariis vel binis, subsessilibus; stylis profunde bipartitis; stamineis brevi-racemosis 12–14-andris. On the Rio Grande, No. 1804, *Wright.* A shrub with stout terete stellately pubescent branches. Leaves growing mostly towards the extremity of the branches, rather thick, paler underneath. Staminate flowers 6–10 in a short raceme, sessile, subtended by minute pinnatifid bracts. Petals 5, oblong. Stamens commonly 14. Fertile flowers usually in pairs at the base of the staminate flowers. Calyx deeply 5-parted; the segments lanceolate and acute. Disk somewhat 5-lobed, with 5 linear or club-shaped processes (petals?) alternating with the calyx-segments. This species seems to be near C. pellitus, *H. B. K.*

C. SUAVEOLENS, var. OBLONGIFOLIUM: foliis oblongis supra discrete stellato-pubescentibus, subtus dense tomentosis; racemo masculo subelongato multifloro, floribus subsessilibus. Rocky ravines along the Rio Grande, from the Pecos and San Pedro to the Gulf. No. 1802, *Wright*, from the Painted Caves, is probably the same, but the specimens are more herbaceous, and they may be only luxuriant shoots. Leaves 1–2 inches long and $\frac{1}{2}$–$\frac{3}{4}$ inch wide, the upper surface much darker than the lower, rather acute and somewhat mucronate. Flowers monœcious; male raceme an inch or more in length. Fertile flowers 1–2. Styles 2-parted nearly to the base.

CROTON LINDHEIMERIANUM, *Scheele in Linnæa*, 25, *p.* 580. Rocky hills, western Texas; New Mexico, Chihuahua and Nuevo Leon; Buena Vista; *Gregg.* (Nos. 641 and 1805, *Wright.*) Plant upright, 1–2 feet high; the branches herbaceous from a woody base. Leaves whitish tomentose with stellate hairs which are somewhat confluent in the centre. Flower smostly diœcious, rarely monœcious, in short racemes, which are subterminal and axillary. Staminate flowers with lanceolate ciliate petals. Stamens about 12; a 5-lobed disk at the base of the hairy filaments. Fertile flowers on pedicels 2–3 lines long; calyx deeply 5-parted. Petals sometimes wanting but usually present and very unequal, 1–2 of them linear and nearly as long as the calyx, the others much shorter or wanting. Disk conspicuous, 5-lobed; the lobes opposite the segments of the calyx. Styles parted nearly to the base; the divisions filiform. This species is known by the name of Mexican Tea.

CROTON FRUTICULOSUM (*Engelm. MSS.*): caule basi fruticoso; foliis ovatis vel lanceolato-ovatis acuminatis acutisve subcordatis remote minutissime denticulatis eglandulosis supra viridis puberulis subtus dense stellato-pubescentibus; floribus monoicis pedicellatis, masculis racemosis 10–5 andris 5-petalis, fœmineis apetalis; stylis profunde bipartitis, laciniis elongatis filiformibus.

Mountain sides and rocky ravines, western Texas; Chihuahua and Sonora. (Nos 639 and 1803, *Wright;* the latter a diœcious form. Nos. 176, 177, and 297 Coll. 1846; Nos. 134 and 297 Coll. 1847, *Lindheimer.* No. 3212, Berlandier, in part; the specimens with hairy fruit being C. trichocarpa, *Torr.* Leaves 1 to 2½ inches long, and half an inch to an inch wide, pubescence of the under surface often of a yellowish tinge. Inflorescence terminal and axillary in the upper leaves. Staminate flowers 10–20 or more. Petals 5-oblong. Stamens exserted; filaments smooth. Disk 5-lobed, glandular. Fertile flowers usually 2, sessile, apetalous; disk indistinct. Capsule globose-trigastric, covered with a short canescent stellate pubescence.

* * HENDECANDRA.

CROTON MURICATUM, *Nutt. in Trans. Amer. Phil. Soc. (n. ser.)* 5, *p.* 173. Hendecandra Texensis, *Klotsch in Erich. Arch.* 1, *p.* 252. H. multiflora, *Torr. in Frém.* 1*st Rep. p.* 96. New Mexico, Central and Western Texas, Chihuahua and Sonora. (No. 1799, *Wright;* No. 1548, *Berlandier.*) In Nuttall's plant from Arkansas, and in specimens from the Upper Platte, the leaves are densely clothed with stellate hairs on both surfaces, but usually the hairs are rather scattered on the upper side. The fruit is roughened (often only obscurely) with small protuberances. Styles 2-parted and the divisions twice cleft, so that there are 24 stigmas in all.

CROTON MARITIMUM, *Walt. Fl. Carol. p.* 383; *Ell. Sp.* 2, *p.* 646. Hendecandra maritima, *Klotsch, l. c.* excel. syn. Crotonis monanthogynis. Galveston, Texas; *Schott.* (No. 3213 *Berlandier.*) Flowers apetalous. Stamens 11–16; filaments hairy. Disk irregularly lobed: of the fertile flowers annular and obscurely 5-lobed. Styles thrice cleft.

CROTON ARGYRANTHEMUM, *Michx. Fl.* 2, *p.* 215. Western Texas, on the Lower Rio Grande, rare. (No. 1554 and 2552, *Berlandier.*) Apparently suffruticose. Under surface of the leaves somewhat silvery with stellate scales. Flowers monœcious in short terminal racemes. The staminate on short pedicels. Petals 5, oblong. Stamens 9–11. Disk with 5 glandular lobes. Fertile flowers 4–8 in each raceme, apetalous. Styles twice cleft at the summit; more deeply divided in Berlandier's No. 2552 than in the Texan plant.

CROTON (HENDECANDRA) PROCUMBENS, *Eschsch. in Mem. Acad. Petersb.* 10 (*sub Hendecandra*); *Hook. & Arn. Bot. Beech., p.* 389, *t.* 91. C. gracile, *H. B. K. Nov. Gen. & Sp.* 2, *p.* 69. Astrogyne crotonoides, *Benth. Pl. Hartw., p.* 14. Sandy places in various parts of California; *Parry, Rich, Le Conte, Frémont.* Banks of the Colorado; *Schott.* On the Gila River; *Emory.* Along the Rio Grande, from Frontera downward, in Western Texas, Chihuahua and Nuevo Leon; *Wright, Thurber, Bigelow.* (Nos. 1800 and 1801, *Wright;* No. 3211 *Berlandier,* a broader leaved form with more silvery scales.) Some of the forms much resemble C. argyranthemum. That species differs, however, in being only slightly woody at the base; the racemes are short and the flowers are 5-petalled, whereas C. procumbens is decidedly shrubby, the racemes are elongated and the flowers apetalous. In the latter, also, the styles are deeply twice cleft. A remarkably slender variety of the plant, in which the racemes (or rather the axes, from which the lower flowers have fallen) are from 2 to 6 inches long, was found by Dr. Bigelow in a dry arroyo opposite Presidio del Norte.

* * * PILONOPHYTUM, *Klotsch.* Heptalon, *Raf.*

CROTON CAPITATUM, *Michx. Fl.* 2, *p.* 214, *Gray, Man. ed.* 2, *p.* 391. Pilonophytum capitatum, *Klotsch., l. c.* On the Rio San Antonio, Texas; *Schott.* Rio Pecos; *Thurber,* (No. 640, *Wright,* Nos. 861 and 2281, *Berlandier.* No. 862 seems to be the same plant, with the flowers in an abnormal state.)

* * * * GEISELERIA, *Klotsch.*

CROTON GLANDULOSUM, *Linn.; Michx. Fl.* 2, *p.* 214; *Ell. Sk.* 2, *p.* 648. Geiseleria glandulosa, *Klotsch.* On the Rio Grande, near Eagle Pass; *Schott, Bigelow*, (No. 638 *Wright.*) In the staminate flowers the calyx is 4–5-parted, the petals 4–6, and the stamens vary from 4 to 8. The calyx of the fertile flowers is unequally 4–5-parted. A common species in the southern and southwestern States, extending into Mexico and South America.

In the herbarium of Berlandier are the following species of Croton which do not occur in any of the Mexican Boundary collections.

CROTON TRICHOCARPUM (n. sp.): fruticosum; foliis lanceolato-ovatis acuminatis vel acutis denticulatis supra glabriusculis subtus canescente stellato-pubescentibus; floribus dioicis, masculis longe spicatis sub-16-andris, petalis calyce æqualibus; fœmineis brevispicatis, petalis 5 angustis calyce brevioribus; stylis profunde bipartitis; fructibus hirsutissimis. Matamoras and San Fernando, Cohahuila; *Berlandier*, Nos. 1503, 1540, 2244, 3003, 3040, and 3212 (in part.) A shrub apparently about 2 feet high. Leaves 1½ to 2½ inches long and half an inch to more than an inch wide; (in Nos. 1503 and 3003 smaller and not acuminate,) obtuse, or somewhat acute at the base. Male spikes 2 to 3 inches long, the flowers on very short pedicels. Petals spatulate-lanceolate, ciliate with long hairs on the margin. Fertile spikes much shorter than the male; the flowers sessile. Sepals acute. Petals lanceolate linear. Disk a narrow ring. Capsule hispid with long hairs, which fall off more or less when the fruit is ripe.

CROTON PENICILLATUM, *Vent.; H. B. K. Nov. Gen. & Sp.* 2, *p.* 84. Tampico; *Berlandier*, Nos. 752 and 2172. "Plant 3–4 feet high."

CROTON SYRINGÆFOLIUM, *H. B. K. l. c., p.* 67. Nos. 745 and 2165, *Berlandier.* No. 744 seems to be the same, with smoother leaves.

(GYNAMBLOSIS) MONANTHOGYNA, *Torr. in Marcy's Rep., p.* 295. Croton monanthogynum, *Michx. Fl.* 2, *p.* 215. C. ellipticum, *Nutt. Gen.* 2, *p.* 225, (excl. syn.) Engelmannia Nuttalliana, *Klotsch, l. c.* Argothamnia herbacea, *Spreng. syst.* 3, *p.* 848. Rocky places, Escondido Creek, Western Texas; *Bigelow.* (Nos. 441, 946, 1762, 2376 and 2532, *Berlandier.*) Nos. 649 and 2059, *Berlandier*, are very poor specimens of what may be a variety of this plant; but they differ in being more densely pubescent; the male flowers with 10–12 stamens, and at least some of the female flowers with three styles.

EREMOCARPUS SETIGERUS, *Benth. Bot. Sulph., p.* 53, *t.* 26. On the sea beach near San Diego, California; *Parry, Schott.* Near San Felipe; *Emory.* This plant begins to flower and even bear fruit when it has scarcely formed a stem and all its leaves are in roseate clusters, spreading flat on the ground.

APHORA HUMILIS, *Engelm. & Gray, Pl. Lindh.* 1, *p.* 54. Gravelly hills along the Rio Grande from New Mexico downward to the Gulf; March to May; *Bigelow, Schott.* San Antonio, Texas; *Thurber.* (Nos. 643 and 1797, *Wright.*) Petals of the fertile flowers longer than the oblong glands. This and the next species differ from A. mercurialina and A. pilosissima in the fertile flowers bearing true petals besides the glands of the disk; the former alternate with the sepals; the latter opposite to them. The hairs, in all the species are simple, and those of the leaves and branches are fixed by the middle.

APHORA LÆVIS (Gray MSS.): glaberrima; caulibus e basi lignoso ramosissimis; foliis oblongis obtusis basi attenuatis; spicis axillaribus paucifloris folio multum brevioribus; petalis in flore masculo lanceolatis calycem paullo superantibus; in flore fœmineo lanceolatis glandulis linearibus emarginatis sub-duplo longioribus. Western Texas; *Wright*, No. 1798. Plant about a span

high. Leaves an inch long, tapering at the base into a short petiole. Spikes on short peduncles 4 to 5-flowered; commonly only the lowest flower pistillate. Very near the last species, but differing in being entirely smooth, and in long narrow emarginate glands of the disk.

APHORA LANCEOLATA, *Engelm. & Gray, l. c.* Serophytum lanceolatum, *Benth. l. c.* Sierra de la Nariz, Sonora; *Schott.* On the Gila; *Thurber.* Near A. humilis.

APHCRA SERRATA (n. sp.): annua, humilis, pilosa; caule e basi ramoso; foliis oblongis basi in petiolum brevem attenuatis serratis; racemis androgynis paucifloris; floris masculi petalis calyce longioribus, foeminei petalis glandulis multo longioribus. Sandy plains near Fort Yuma, California; *Schott.* On the Rio Gila; *Parry.* Stems moderately branching, 3–6 inches long. Leaves $\frac{3}{4}$–1 inch long, ovate, or elliptical-oblong, obtuse or acute, denticulate-serrate. Clusters or short racemes axillary, 4–5-flowered; one or two of the flowers fertile, the others staminate. Petals of the staminate flowers rhombic-lanceolate, acuminate. Stamens 10, in 2 series, the filaments united into a slender column, at the base of which are 5 oblong erect glands. Fertile flowers 5-petalled, with 5 linear short glands alternating with the petals. Ovary trigastric, very hispid; styles deeply 2-parted; the divisions linear. Seed the size of a large pin-head, globose-obovate, gray, corrugated.

We have incomplete specimens (with staminate flowers only) of an allied species, or a variety of this plant, collected by Mr. Schott, on the Sierra del Tule, Sonora. It is much larger than A. serrata; the branches are quite smooth, and the oblong remotely denticulate leaves (1–2 inches long) are only sparsely hirsute. The racemes, or spikes, are axillary, 8–10-flowered, on peduncles about as long as the p tioles. Segments of the calyx narrowly lanceolate. Petals 5, rhombic-lanceolate, purple. Stamens 10, in two series, one above the other; the filaments united into a column, with 5 oblong glands at the base. Another allied species, or probably variety, was found by Mr. Blodgett, in dry places, at Key West. It seems to be a prostrate annual, slightly hirsute, with ovate-oblong acute sub-sessile leaves, which are either denticulate-serrate, or nearly entire. Clusters 4–5-flowered. Petals of the staminate flowers oblong, a little exceeding the calyx. Fertile flowers 5-petalled, the petals ovate, half the length of the calyx. Glands very short and emarginate. Seed sub-globose, reticulate-corrugate.

APHORA MERCURIALANA, *Nutt. in Amer. Phil. Trans. (n. ser.)* 5, *p.* 174. Serophytum Drummondi, *Benth. Bot. Sulph. p* 53. Western Texas; *Wright.* (No. 2166, *Berlandier.*)—Var. PUMILA: nana, glabrescens, e basi ramosa; floris masculi petalis calyce paulo longioribus. Springs near Eagle Pass, on the Rio Grande; *Bigelow.* The variety is woody at the base, as in the ordinary form. The stem is only 4–6 inches long. Leaves (in dried specimens) more or less tinged or clouded with purple.

APHORA PILOSISSIMA. Serophytum pilosissimum, *Benth. l. c.* Southern Texas. (*Berlandier,* No. 2566.) This is the same as No. 322 of Drummond's third collection of Texan plants. Engelmann and Gray incorrectly refer this species to A. mercurialina, *Nutt.*

MOZINNA SPATHULATA, *Orteg. Dec.* 8, *p.* 105, *t.* 13. Var. SESSILIFLORA, *Hook. Ic.* 4, 357. Gravelly hills and mountain sides, western Texas, Chihuahua, Coahuila, and Nuevo Leon; flowering throughout most of the season. Near Matamoras; *Berlandier,* No. 3210. (No. 1812, *Wright.*) An erect shrubby plant, with nearly simple rather stout branches. Leaves 1–2 inches long, varying from linear to obovate-spatulate, and from obtuse or emarginate to acute. Flowers white, in small facicles, growing, with the leaves, from short wart-like spurs. Fruit ovate, acute, often (by abortion) 1-seeded, the thin papery endocarp separating from the exocarp. Seed the size of a large pea, glabrous. All the species of this genus are called by the Mexicans

Sangre de Drago. Dr. Gregg, who found the present species in Chihuahua and other parts of Mexico, says it is astringent, and is employed by the natives as a remedy for sore gums and loose teeth. Mr. Schott found on the Sierra del Tule and Tinaja Alta, in Sonora, incomplete specimens of a Mozinna, which is probably a variety or state of M. spathulata. The leaves are about one-third of an inch long, obovate-cuneate, obtuse or emarginate, and the inflorescence is more expanded, so as to be somewhat paniculate. The fertile flowers were not collected.

MOZINNA CANESCENS, *Benth. Bot. Sulph. p.* 52, *t.* 25. Near Quitobaquata, Sonora, August; *Schott.* Our specimens are with staminate flowers only. I fear this is not sufficiently distinct from M. cordata, *Ort.*

MOZINNA CARDIOPHYLLA (n. sp.): foliis late cordatis acuminatis petiolatis crenato-dentatis; floribus masculis paniculatis. Near Tucson and Sierra Verde, Sonora, June; *Schott.* Plant glabrous, apparently 1–2 feet high. Leaves about an inch long, broadly cordate, rather coarsely crenate-toothed. Flowers nearly as in the two other species; only the staminate known.

CNIDOSCOLUS STIMULOSUS, *Engelm. & Gray, Pl. Lindh.* 1, *p.* 26. C. Michauxii, *Pohl.* fide *Klotsch.* Jatropha stimulosa, *Michx. Fl.* 2, *p.* 216; *Ell. Sk.* 2, *p.* 649. Sandy places along the lower Rio Grande and westward to Sonora. (Nos. 1071 and 2501, *Berlandier.*) Variable in the size and outline of the leaves.

CNIDOSCOLUS ANGUSTIDENS (n. sp.): herbaceus, pilis urentibus hispidus; foliis ad mediam 3–5-lobatis, lobis grosse inciso-dentatis, dentibus angustis elongatis acutisimis macronato-setaceis; floribus cymosis, centrali fœminei; calycis laciniis tubo subæquantibus. Santa Cruz, &c., Sonora; *Thurber, Schott.* (No. 1809, *Wright.*) Plant one to two feet high, more or less hispid with stinging hairs. Leaves remarkable for the long narrow salient teeth, which terminate in a rigid bristle; the lamina sometimes nearly smooth, but the petiole always hispid. Flowers as large as in C. stimulosus, but the tube of the petaloid calyx much shorter. Stamens 10; the filaments monadelphous about half their length, in two series of five each; the interior about one-third longer than exterior. At the base of the column are five small sessile glands.

JATROPHA MULTIFIDA, *Linn. Sp. p.* 1429; *H. B. K. Nov. Gen. & Sp.* 2, *p.* 105. J. macrorhiza, *Benth. Pl. Hartw. p.* 8? Plains along the Rio Grande from the Presidio del Norte downward to Neuvo Leon, and westward to Sonora, May–July. (No. 1808, *Wright.*) Plant about a foot high, herbaceous from a thick root or rhizoma. Leaves 3–5-lobed, the lobes oblong-lanceolate, laciniate and toothed, the teeth very acute and pointed with a bristle. Stipules deeply laciniate with subulate segments. Flowers in terminal cymes, the alar one of the primary usually fertile, the others staminate. Bracts ciliate. STAMINATE FL. Calyx deeply 5-parted; the segments laciniate-toothed. Corolla white, about twice as long as the calyx; segments obovate-spatulate. Stamens 8, monadelphous below, 3 of them longer than the other 5; the column with 5 erect cuneate emarginate glands at the base. FERTILE FL Calyx and corolla nearly as in the staminate, except that the segments of the former are more laciniate. Style 3-parted nearly to the base; the divisions 2-cleft at the summit. Capsule about half an inch in diameter, nearly smooth, (granular when dry.) Seeds oblong, light brown with purple spots. Mr. Thurber informs us that the Mexicans know the seeds of this species to be purgative.

JATROPHA BERLANDIERI (n. sp): glabra; foliis radicalibus longissime petiolatis glaucis palmatim 5–7-partitis, segmentis oblongis vel obovatis laciniato-dentatis vel pinnatifido-incisis; calycis segmentis ovatis integris corolla multo brevioribus; floribus masculis 8-andris. On the Lower Rio Grande; *Wright,* No. 651. Plains near Eagle Pass and Piedra Pinta; *Bigelow, Schott.* Monterey, Neuvo Leon; *Dr. Edwards.* (No. 1810, *Wright.* No. 2060 and 3124,

Berlandier.) Stem about a foot high, from a large oblong-conical starchy root. Leaves divided nearly to the base, the laciniæ often linear and very narrow; petioles 2–6 inches long. Flowers in terminal cymes, the alar one only fertile. Corolla purple; the segments obovate-oblong. Stamens monadelphous only near the base, 5 of them a little shorter than the other three; anthers linear, elongated: 5 glands at the base of the column. Styles short, united below; stigmas somewhat thickened, 2-lobed.

Janipha Loeflingii, *H. B. K. Nov. Gen. & Sp.* 1, *p.* 107. Jatropha Janipha, *Linn.* Ringgold Barracks, lower Rio Grande, June; *Schott.* Stems slender, glabrous. Leaves deeply 3–5-lobed, the lowest lobes smallest and entire, the others (especially the middle one) more or less panduriform. Staminate flowers 8–15 in a terminal raceme; the pedicels scarcely one line long; calyx tubular and at length salverform; the segments linear-oblong. Stamens 8; filaments free to the base; 5 of them shorter than the other; 5 small glands at the base of the filaments. Fertile flowers 2, at the base of the staminate raceme, their pedicels at length 6–8 lines long and reflexed. Calyx 5-parted to the base. Ovary globose, smooth, sometimes with 1 or 2 filaments bearing 1-celled anthers. Styles 3 short; stigmas dilated, cristate-lobed. Ripe fruit not seen. This is intermediate between J. Loeflingii and J. Yuquilla, and all are probably forms of one species.

Janipha Manihot, *H. B. K. l. c.*: var. angustiloba: foliis 5-partitis, laciniis anguste lanceolato-linearibus integerrimis vel undulatis acutis. Santa Cruz and Tubac, Sonora, June—July; *Schott.* Near Monterey, Neuvo Leon; *Gregg.* No. 1811, *Wright.* Plant smooth, 1–2 feet from a somewhat shrubby base, branching above. Leaves mostly 5–parted; the segments 2–5 inches long and 1½–5 lines wide, usually somewhat undulate and sometimes approaching to panduriform. Stipules minute and subulate. Racemes 15–20-flowered; the 2 lowest flowers fertile, the others staminate. Calyx of the staminate flowers greenish-white, broadly campanulate, 5-lobed about half way down; the lobes oblong. Stamens 10; filaments distinct, 5 of them longer than the others; 5 glands at the base of the column. Calyx of the fertile flower 5-parted to the base. Pistil nearly as in J. Loeflingii. Fruit 3-lobed, the carpels 1-seeded. Seeds 4½ lines long, gray, mottled with dark purple. This differs from any form of J. Manihot in our herbarium, but it seems hardly a distinct species.

Acalypha Caroliniana, *Walt. Fl. Car. p.* 238; *Ell. Sk.* 2, *p.* 645. Ravines near Presidio del Norte, and near the Copper Mines, August—September; *Bigelow.* Annual. Staminate spikes axillary, 3–4 lines long; fertile ones terminal 2–3 inches long. Involucre cut into deep narrow segments. Capsule echinate with short soft spines. Very near A. polystachya of the West Indies.

Acalypha Virginica, *L. Sp. p.* 1423; *Torr. Fl. New York*, 2, *p.* 173. Near the Copper Mines, New Mexico; *Bigelow.* No. 1817 and 1818, *Wright.* Differs somewhat from the eastern plant in the longer spikes and the more foliaceous terminal bracts.

Acalypha gracilens, *Gray, Man. Bot. ed.* 2, *p.* 390. Western Texas, *Wright.* More common southward and westward than the last.

Acalypha phleoides (*Cav.?*): suffruticosa; foliis ovatis subsessilibus serratis; spicis terminalibus solitariis androgyonis superne masculis inferne fœmineis; involucris 5-dentatis. A. phleoides, "*Cav. Ic.* 6, *p.* 48, *t.* 569, *f.* 2;" *ex Pers. Syn.* 2, *p.* 581. Hill sides, western Texas, Chihuahua, Cohahuila, Sonora, &c., April—July. No. 1815 and 1816, *Wright.* Stem apparently prostrate with erect hairy branches about a foot high. Leaves an inch long, rather acute at both ends, a little hairy above and underneath. Stipules subulate, very small. Spikes terminating the branches, 1–2 inches long, the summit usually staminate and much more slender than the fertile

portion. Bracts of the fertile flowers coarsely and acutely 5-toothed, sparingly ciliate with rigid hairs. Capsule hispid at the summit. According to Dr. Gregg this plant is used by the Mexicans as a wash for sore gums and loose teeth, and as an application to ulcers. It is doubtful whether this is A. phleoides, as that species is said to be an annual. Our plant seems to be nearly allied to A. prunifolia, but that also is described as an annual.

Acalypha hederacea (n. sp.): e caudice lignoso multicaulis, molliter incano-pubescens seu villosa ; foliis orbiculari-reniformibus longe petiolatis crenato-dentatis ; spicis dioicis (rarissime monoicis) terminalibus pedunculatis, stamineis gracilibus fœmineis brevibus crassis, bracteis obtuse 9–10-dentatis. Damp places, valley of the Pecos ; *Bigelow*. Neuvo Leone and Chihuahua, *Gregg*, *Edwards*. May—September. (No. 648, 1813 and 1814, *Wright*. No 473, *Lindheimer*.) Plant slender, prostrate, branches 6–15 inches long. Leaves 6–10 lines in diameter, mostly broader than long, truncate or cordate at the base. Staminate spikes 6–10 inches long ; the peduncle often 1–2 inches long. Fertile spikes half an inch long. Bracts cucullate. Fruit hispid.—In one of Mr. Wright's specimens (No. 1813) there are sessile axillary few-flowered fertile spikes, and others that are androgynous, consisting of a short pedunculate staminate spike with a single fertile flower at the base.

Acalypha radians (n. sp.): e basi suffruticosa multicaulis, pilis longis patentissimis villosa ; foliis longe petiolatis orbiculari-reniformibus inciso 7–13-fidis, lobis sublinearibus ; spicis dioicis terminalibus pedunculatis, stamineis oblongo-linearibus, fœmineis crassis ; bracteis obtuse 9–10-dentatis. Western Texas, especially along the lower Rio Grande, and in the adjoining Mexican States. (No. 251, Coll. II,) Texas, *Drummond*. No. 649, *Wright*. No. 636, 1070, 2046, and 2500, *Berlandier*) This is certainly very near the last, but I have not seen intermediate forms. It it is easily distinguished by its hairiness, and the radiately lobed leaves.

Tragia urticæfolia, *Michx. Fl.* 2, *p.* 176 ; *Ell. Sk.* 2, *p.* 564. T. betonicæfolia, *Nutt. l. c. p.* 173. T. brevispica, *Engelm. & Gray*, *Pl. Lindh.* 1, *p.* 54 ; *Scheele in Linnæa*, 25, *p.* 486. Rocky ravines and hill sides, New Mexico, and western Texas, along the Rio Grande to the Gulf. (No. 307, Coll. II. Texas, *Lindh.* No. 260, Coll. III. Texas, *Drummond*. No. 1793, *Wright*.) No. 647 of Wright's earlier collection in the same plant with the flowers and fruit in an abnormal state. I can find no sufficient characters for distinguishing this plant from T. urticæfolia, *Mx.* The stems are at first upright, but at length prostrate or sometimes even a little twining. The length of the spikes is very variable. In specimens from Arkansas the fertile flowers have the calyx 6-petalled, and the staminate 4–5-sepalled, 4–5-androus. The stems are somewhat woody at the base.

Tragia urticæfolia, var.? laciniata : foliis pedatim 3-partitis, laciniis pinnatifidis, intermedio longiore. Sonora, Mexico, *Thurber*. No. 1795, *Wright*. Stem apparently prostrate, 12-15 inches long, paniculately branched, hirsute. Leaves 1–1¼ inch long, the lower ones on short petioles, upper nearly sessile, pedately divided to the base, pinnatifidly cut into acute segments or teeth ; the lateral lobes sometimes unequally 2-cleft. Racemes terminating the short branches, few-flowered, the lowest flower fertile. Calyx and fruit as in the ordinary form, *Fruit*. A remarkable variety, approaching (by the description) T. cannabina. Mr. Schott collected in the northwestern part of Sonora specimens of a Tragia that seems intermediate between T. urticæfolia and this plant. The leaves are oblong-ovate and coarsely toothed, and part of them are 2-lobed at the base or somewhat halberd-form, showing the tendency to become pedate.

Tragia ramosa, *Torr. in Ann. Lyc. New York*, 2, *p.* 245. T. angustifolia, *Nutt. l. c.* T.

scutellariæfolia, *Scheele, l. c.* Gravelly hills of the Limpio; *Bigelow.* Ravines of the Organ mountains, April; *Parry.* On the upper Rio Grande, New Mexico; *Fendler*, No. 776. Perhaps only a var. of the last. It differs chiefly in being much smaller and erect, with the leaves scarcely at all cordate. Var.? LEPTOPHYLLA: foliis linearibus integris vel remote denticulatis.—Near Howard's Springs; *Bigelow;* No. 1796, *Wright.* Plant woody at the base, about a span high, and branched from the base. Stem and branches sparingly hirsute. Leaves 1–1¼ inch long and 1–2 lines wide. Spikes few-flowered; the lowest flowers fertile. Flowers as in T. ramosa, etc.

TRAGIA URENS, *Linn. Sp. p.* 1391; *Ell. Sk.* 2, *p.* 564. Hills on the lower Rio Grande; *Schott.*

TYRIA MYRICÆFOLIA, *Scheele in Linnæa*, 25, *p.* 581. Rocky hill sides near the Pecos and Live Oak creek, also on the Flounce mountains, etc.; western Texas and Chihuahua; *Bigelow, Schott.* San Felipe, California; *Parry.* No. 1806 and 1807, *Wright.* An irregularly branched homely shrub, 3–10 feet high, of a grayish green color, clothed with a minute stellate pubescence. Sterile flowers on short pedicels which are aggregated upon spurs or short branches and articulated at the base. Sepals mostly 3, sometimes 4. Stamens 3–20, the filaments distinct, with minute alternate capitate pedicellate glands at their base. No abortive ovary. Fertile flowers sessile. Fruit tricoccous or by abortion dicoccous.

SAPIUM? ANNUUM (n. sp.): annuum, humile; foliis rhombeo-oblongis acuminatis basi attenuatis prominenter trinervibus spinuloso-dentatis rigidulis eglandulosis. Stillingia spinulosa, *Torr. in Emory's Rep. p.* 151. In the sandy desert west of the Colorado, California; *Major Emory.* Near Fort Yuma; *Schott.* Var. DENTATUM: foliis oblongis vel obovato-oblongis obtusis vel acutiusculis membranaceis acute dentatis, dentibus inermibus, venis inconspicuis. Wet ravines, Eagle Pass, Lower Rio Grande; *Bigelow, Schott.* Valley of the Almo; *Parry.* Near Monterey, Neuvo Leon; *Dr. Edwards & Major Eaton.* These two forms differ considerably, but they probably belong to one species. They are both undoubtedly annual.

SAPIUM SYLVATICUM. Stillingia sylvatica, *Linn. Mant. p.* 126; *Ell. Sk.* 2, *p.* 560. Var. LINEARIFOLIA: foliis anguste-linearibus argute serrulatis, serraturis glandulosis. Ravines on the San Pedro river and on limestone rocks higher up on the Rio Grande; *Schott, Bigelow.* Leaves 2½–3 inches long, 2–3-lines wide, somewhat coriaceous. Spikes androgynous, 1–2 inches long, 2–4 of the lowest flowers fertile. Staminate flowers 5–10 on short pedicels under each scale or involucre. Calyx hemispherical, 2-lipped; the border slightly crenulate. Stamens 2: filaments united at the very base.

SAPIUM SALICIFOLIUM, *H. B. K. Nov. Gen. & Sp.* 2, *p.* 65. Between Rayon and Ures, Sonora; *Thurber.* "A shrub 10–12 feet high with somewhat erect and slender branches, and deep green foliage." Leaves 1½–2 inches long, and 3–4 lines wide, somewhat coriaceous, rather acute, remotely denticulate, the upper side (when dry) of a verdigris green color, often with 2 minute glands at the base. The specimens are in fruit. The capsule is solitary and apparently axillary, on a short peduncle, smaller than in S. sylvatica, but in other respects similar, and without any remains of the staminate spike. On the Sierra de la Nayoz, in Sonora, Mr. Schott gathered specimens of what seem to be the same plant. The leaves are similar in form, but a little wider, more membranaceous and rather obtuse, or sometimes even emarginate. The staminate spikes are without any fertile flowers at the base. There are 10–20 sessile flowers under each scale or involucre. The calyx is manifestly 2-lipped, and the stamens seem to be constantly two, the

filaments of which are scarcely united at the base. Fertile flowers not seen. Fruit solitary and resembling that of S. salicifolium, except in being larger. The plant seems to be dioecious.

The genera Sapium and Stillingia are, we think, very properly united by Klotsch. Long ago Ad. Jussieu remarked (*Euphorb. p.* 50) that they were scarcely distinct and ought perhaps to form one genus. The calyx of the staminate flowers is the same in both, although it is described as tubular in the latter. The number of staminate flowers under a single bract or involucre is not a sufficient distinction. There are several in S. sylvaticum and S. salicifolium; but in S. annuum and S. ligustrinum they are solitary.

Simmondsia Californica, *Nutt. in Hook. Lond. Jour. Bot.* 3, *p.* 400, *t.* 16; (Tab. XLIX.) Dry hills along the Gila and westward to San Diego; not uncommon in various parts of southern California. Nuttall did not see the fruit. This is about three-fourths of an inch long, ovate and obtusely triangular, abruptly pointed, and somewhat resembles the gland of an acorn. At maturity it splits into 3 valves; the dehiscence being loculicidal. It usually contains but a single seed, which is conformed to the cavity of the pericarp. The embryo is wholly destitute of albumen. The cotyledons are very thick and fleshy, and they cohere together, so that they only separate after considerable boiling. The radicle is minute and superior. The nuts have somewhat the flavor of filberts, but the after-taste is rather nauseous, and they are apt to cause purging. Mr. Nuttall thinks this genus is very clearly allied to Garrya, but it differs in several important characters. Lindley places it, without a remark, in Euphorbiaceæ, and we are inclined to follow him, notwithstanding the absence of albumen.

Suborder BATIDEÆ.

Batis maritima, *Linn.; Torr. in Smithson. Contrib.* 6, *p. t.* 11. On the beach, at Brazos Santiago; *Schott.*

Batis Californica, *Torr. l. c.* Salt marshes near San Diego, California; *Parry.* We have received no more specimens of this plant since it was first described, and are by no means certain that it is specifically distinct from B. maritima.

URTICACEÆ.

Urtica urens, *Linn. Spec.* 2, *p.* 284; *Miguel in Mart. Fl. Bras. fasc.* 12, *p.* 195, *t.* 67. In the streets of Monterey, California, where it has manifestly been introduced, May; *Parry.* Wet ravines near the Organ mountains, New Mexico; *Bigelow.*

Urtica purpurascens, *Nutt. in Trans. Amer. Phil. Soc.* (*n. ser.*) 5, *p.* 169; *Gray, Man. ed.* 2, *p.* 398. San Antonio, Texas; *Thurber.* Near Eagle Pass on the Rio Grande; *Bigelow.* It is commonly simple, but Dr. Bigelow's specimens are branching from the base.

Urtica gracilis, *Ait. Hort. Kew* 3, *p.* 341; *Gray, l. c.* Banks of the Limpio, July; *Bigelow.* California; *Rev. A. Fitch.* Stem 4–5 feet high. Leaves often ovate and sometimes slightly cordate, coarsely toothed.

Boehmeria cylindrica, *Willd. Sp.* 4, *p.* 340. Banks of streams and wet thickets, western Texas.

Parietaria debilis, *Forst.* S. Floridana, *Weddell, Monogr. Urtic. p.* 316. P. Floridana, *Nutt. Gen.* 2, *p.* 208; *Ell. Sk.* 1, *p.* 576. Rocky places along the upper Rio Grande and in Sonora, March—May. (No. 1861, *Wright.*) The leaves vary from nearly orbicular to ovate-

oblong. The narrower leaved forms approach P. Pennsylvanica. Found in many parts of the world, but not in Europe.

Humulus Lupulus, *Linn. Sp.* 2, *p.* 1028; *Torr. Fl. N. York,* 2, *p.* 225, *& in Sitgr. Rep. p.* 173 H. Americanus, *Nutt. Pl. Gamb. in Jour. Acad. Phil. n. ser.* 1, *p* 181. Banks of the Mimbres; *Bigelow.* (No. 1860, *Wright*)

Morus rubra, *Linn l. c. p.* 986; *Michx. f. Sylv.* 2, *t.* 116. Common in western Texas, New Mexico, and Chihuahua; often flowering and bearing fruit when a low shrub. (No. 1859, *Wright.*) Nos. 2498 and 2416, *Berlandier.* The leaves are commonly about two inches long, but those of vigorous shoots are sometimes 11 inches long and 8 inches in diameter.

Celtis occidentalis, *Linn. Sp.* (*ed.* 2) 2, *p.* 1478; *Michx. f. Sylv.* 2, *t.* 114; *Torr. Fl. N. York,* 2, *p.* 167. C. crassifolia, *Lam.* Western Texas and New Mexico. We quite agree with Dr. Gray in regarding C. crassifolia as a mere variety of this species. Some of our specimens show a transition to C. Mississippiensis, *Bosc,* (C. integrifolia, *Nutt* ,) which Dr. Gray suspected was not distinct.

Celtis (Momisia) pallida (n. sp.): ramis incano-puberulis; spinis subgeminis rectis; foliis ovatis vel ovato-oblongis pauci serratis integerrimisque puberulis crassiusculis breviter petiolatis basi acutiusculis raro leviter cordatis; cymulis polygamis 3–5-floris petiolo paullo longioribus; bacca ovata laevi glabra. (Tab. L.) Common in western Texas and along the Rio Grande, from Fort Duncan to the Gulf, and west to Magdalena in Sonora. It is called Grangeno in Neuvo Leon. (No. 1858, *Wright;* No. 3021, *Berlandier.*) A shrub 6–10 feet high, with numerous flexuous spreading branches. Thorns from 2 or 3 lines to an inch in length. Leaves 8–14 lines long, mostly acute, 3-nerved, minutely pubescent and somewhat scabrous on both sides. Flowers small, white; the lower ones of the cymule mostly male, with a rudimentary pistil; the terminal one perfect. Styles thick, divaricate, cleft nearly half their length, the undivided portion rather shorter than the ovary. Berry about three lines long, orange, yellow, and red, with an acid pulp, which is edible but rather astringent. This species seems to be nearest the Brazilian C. orthocanthos, *Planch.*

Ulmus crassifolia, *Nutt. in Trans. Amer. Phil. Soc.* (*n. ser.*) 5, *p.* 169. U. opaca, *Nutt. Sylv.* 1, *p.* 35, *t.* 11. On the banks of rivers, from San Antonio, Texas, to the Pecos river; *Schott. Thurber.* (No. 1857, *Wright;* No. 346, Coll. II, Texas, *Drummond;* No. 2546, *Berlandier.*) Mr. Nuttall, in his Sylva, has overlooked his much earlier name and description of this species.

Ulmus alata, *Michx. Fl.* 1, *p.* 173; *Michx. f. Sylv.* 2, *t.* 127. Near Eagle Pass on the Rio Grande; *Bigelow.*

SAURACEÆ.

Anemopsis Californica, *Nutt. in Tayl. Ann. Nat. Hist.* 1, *p.* 136; *Hook. & Arn. Bot. Beechey, p.* 390, *t.* 92. Wet places, San Luis Rey, California; *Parry.* Western Texas, Mew Mexico, and Chihuahua, April—July.

CERATOPHYLLACEÆ.

Ceratophyllum demersum, *Linn. Sp. p.* 1409. In running water, near the southern boundary line of Upper California; *Parry.*

BETULACEÆ.

Alnus viridis, *DC.* Near San Diego, California; *Parry.* Our specimens are without fruit. Dr. Parry informs me that this is a common species in California, and that it sometimes becomes

a tree 40 feet in height, with a trunk 8 inches in diameter. We have specimens of another Alnus, collected in California by *Rev. A. Fitch*, which seems to be A. rhombifolia, *Nutt.* It differs from A. serrulata in the coarse teeth of the leaves, and from all other North American species in the long acute base of the leaves.

ALNUS OBLONGIFOLIUS (n. sp.): ramis glabris nitidis; foliis oblongo-lanceolatis utrinque acutis subduplicato-serratis supra glaberrimis subtus minutissime pubescentibus utrinque viridibus; nuculis apteris. Banks of the Mimbres and near Santa Barbara, New Mexico. (No. 1864, *Wright.*) A tree 30 feet high. Leaves $2\frac{1}{2}$–$3\frac{1}{2}$ inches long and 1–$1\frac{1}{2}$ inch wide; unequally serrate, serratures glandular at the tip; petiole about one-third as long as the lamina. Catkins somewhat paniculate, ovate. Nutlets orbicular-obovate, without any trace of a wing.

SALICACEÆ.

SALIX LUCIDA, *Muhl.* Var. ANGUSTIFOLIA, *Anders. Salices Bor.-Amer. in Proceed. Amer. Acad.* 4. S. lasiandra, *Benth. Pl. Hartw. p.* 335; *Torr. Bot. Whippl. Rep. p.* 138. Mountains of California, (the precise station not recorded;) *Parry.* "A straggling shrub."

SALIX WRIGHTII, *Anders. l. c.* Borders of the Upper Rio Grande, in western Texas and Chihuahua; also near Lake Santa Maria. (No. 1877, *Wright.*) A tree 15 to 25 feet high.

SALIX LONGIFOLIA, *Muhl.; Anders. l. c.* Between the Pecos and the Rio Grande, and westward to the lower Rio Gila.

I have not ventured to name five or six other willows of the Mexican Boundary collections. Mr. Anderson is preparing a more complete account of this exceedingly difficult genus. He has shown that many of our Salices, until recently supposed to be different from any in the Old World, are identical with European species, or only varieties of them. He desires contributions of specimens from our botanists, that he may be able to perfect his contemplated work.

POPULUS TRICHOCARPA, *Torr. in Hook. Ic.* 9, *t.* 878. Borders of Santa Clara river, near Buenaventura; *Parry.* A tree 30 feet high, with smooth bark. This species is easily distinguished by the hairy fruit.

POPULUS MONILIFERA, *Ait.; Michx. f. Sylv.* 1, *p.* 116, *t.* 96, *f.* 2. Borders of streams from western Texas and New Mexico to California. This is the ordinary cotton-wood of the West.

POPULUS TREMULOIDES, *Michx. Fl.* 2, *p.* 143; *Michx. f. Sylv.* 1, *p.* 125, *t.* 99, *f. c.* Hills near the Copper Mines, in fruit, June; *Bigelow.* (No. 1870, *Wright.*)

POPULUS BALSAMIFERA, *L.; Michx. f. Sylv.* 2, *p.* 121, *t.* 98, *f.* 1. Banks of the Mimbres; *Bigelow.*

POPULUS ANGUSTIFOLIA, *James; Torr. Ann. Lyc. N. York*, 2, *p.* 249; *Nutt. Sylv.* 1, *p.* 52, *t.* 16. Near the Copper Mines of New Mexico and on the banks of the Mimbres; *Bigelow.* This is the Narrow-leaved Poplar of Lewis and Clark's Travels. It is No. 817 of Fendler's N. Mexican Collection.

PLATANACEÆ.

PLATANUS RACEMOSA, *Nutt. in Audubon's Birds*, 1, *t.* 362, *& Sylv.* 1, *p.* 47, *t.* 15; *Newberry Bot. Williamson & Abbott's Rep. p.* 33, *f.* 10. P. Mexicana, *Moric.* P. Californica, *Benth.* Borders of streams near San Diego, etc., California; *Parry.* Guadalupe Cañon, Sonora; *Thurber.* A large tree, sometimes 50–60 feet high. Hartweg states that in California he has seen it 80 feet high and 12 feet in circumference.

Platanus occidentalis, *L. Sp.* 2, *p.* 999; *Michx. f. Sylv.* 1, *t.* 63. Devil's River valley, western Texas; probably the western limit of this species; *Bigelow.*

GARRYACEÆ.

Garrya elliptica, *Lindl. Bot. Reg. t.* 1686. Sandy places near Monterey, California: *Parry.* A shrub, seldom more than 5 or 8 feet high. Both sexes occur in Dr. Parry's specimens.

Garrya Wrightii, *Torr. Bot. Whipp. Rep. p.* 136. Hills near the Copper Mines, New Mexico, abundant; July.

Garrya Lindheimeri, *Torr. l. c.* Western Texas and New Mexico; *Wright.* El Paso; *Thurber.*

JUGLANDACEÆ.

Juglans rupestris, *Engelm.; Torr. Bot. Sitgr. Rep. p.* 171, *t.* 15. J. pyriformis, *Liebm. Vidensk. Meddel. Kjobenh. for* 1850, *p.* 80? Common on the gravelly borders of streams in western Texas from Devil's river to the Pecos and Limpio; also at the Copper Mines. (No. 1029 and 2459, *Berlandier.*) The *var.* major, *Torr. l. c. t.* 16, seems to pass gradually into the small-fruited form. They are found together, and the variety occurs also in Sonora. At San Fernando, beyond Los Angeles, Dr. Parry found a Juglans in flower, which is probably a variety of J. rupestris. The leaflets are 11–13, ovate-oblong, rather obtuse and sharply serrate. He did not obtain the fruit.

Carya olivæformis, *Nutt. Gen.* 2, *p.* 221. Juglans olivæformis, *Michx. Fl.* 2, *p.* 192; *Michx. f. Sylv.* 1, *t.* 32. Western Texas, near the Rio Grande; *Bigelow.* The leaflets are only 9–11, and the nuts much shorter than in the ordinary Pecan.

CUPULIFERÆ.

Castanea chrysophylla, *Dougl. in Hook. Fl. Bor.-Amer.* 2, *p.* 159; *Hook. Lond. Jour. Bot.* 1843, *t.* 16. Near Monterey, California, where it is a bush, only 2–3 feet high. At Santa Cruz, in the same State, it becomes a tree, 50 feet high. The nuts are small, like those of the beech, but rounded on the angles.

Quercus Gambelii, *Nutt. Pl. Gamb. l. c. p.* 179; *Torr. Bot. Sitgr. Rep. p.* 172; *Liebm. Querc. Neo.-Mex. & Calif. p.* 169.* Mountains near the Copper Mines, New Mexico; *Bigelow.* Liebmann refers to this species, No. 806, 809 and 810 b. of Fendler's New Mexican Collection.

Quercus lobata, *Née in Anal. de Cien. Nat.* 3, *p.* 270, (fide *Liebm. l. c. p.* 172.) Q. Hindsii, *Benth. Bot. Sulph. p.* 55; *Torr. Bot. Whipp. Rep. p.* 138; *Newberry in Pacif. R. R. Rep. Bot. p.* 27, *fig.* 5. Near Monterey and in other parts of California. A fine tree, allied to the white oak of the Atlantic States, remarkable for its usually long acorns. Q. lobata is only a form with shorter acorns.

Quercus tinctoria, var.? Californica, *Torr. Bot. Whippl. Rep. p.* 138. Q. rubra, *Liebm. in Benth. Pl. Hartw. p.* 337, non *Linn.* Q. Kelloggii, *Newberry, l. c. p.* 28, *f.* 6. On mountains east of San Luis Rey and San Diego, California; *Parry.* A middle-sized tree. It is called black oak in California. The leaves when young are very downy underneath, and somewhat so on the upper surface; but they are nearly glabrous late in the season. Sometimes the acorn is short and half immersed in the cup.

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QUERCUS COCCINEA, var.? MICROCARPA: foliis oblongis profunde sinuato-pinnatifidis utrinque glabris nitidisve, sinubus obtusis, lobis (utrinque 2–3) parce dentatis, dentibus setaceo-acuminatis; fructibus solitariis geminisque, glande oblongo-ovata apiculata. Rocky ravines near the mouth of the Pecos, and on the Limpio; *Bigelow.* Oak Creek, Texas; *Schott.* Differs from the common state of Q. coccinea in the considerably smaller and less lobed leaves, in the acorns being scarcely one-third as large, the cup not turbinate, and the gland longer in proportion to its breadth.

QUERCUS NIGRA, *Linn.; Michx. f. Sylv.* 1, *t.* 20; *Torr. Fl. N. York*, 2, *p.* 188, *t.* 105. Medina Creek, above San Antonio, Texas; *Parry.* This appears to be the western limit of the *Black-Jack Oak.*

QUERCUS OBTUSIFOLIA, var.? BREVILOBA: foliis subcoriaceis obovato-oblongis basi cuneatis, lobis brevibus obtusis supra viridibus subtus pallidis pubescentibus; fructibus sessilibus solitariis vel geminis, cupula depressa hemispherica, glande oblongo-ovato obtusa.—Mountain gorges near Howard's Springs, western Texas; *Bigelow.* We refer this oak to Q. obtusifolia with much doubt, but it seems more nearly allied to that species than to any other. It differs, however, in its leaves being much smaller and far less lobed, more coriaceous and apparently evergreen. The acorns, too, are smaller and the cup more shallow.

QUERCUS UNDULATA, *Torr. in Ann. Lyc. N. York*, 2, *p.* 248, *t.* 4; *& in Marcy's Rep. p.* 297. Q. Fendleri, *Liebm. l. c. p.* 170.—New Mexico, near the Rio Grande. (No. 805 and 807, Fendl. N. Mex. Coll.)

QUERCUS VIRENS, *Ait.; Michx. f. Sylv.* 1, *p.* 57, *t.* 12. Moist woods on the Gulf coast from the Brazos to the Rio Grande, also along the latter river as high as the Pecos and Live Oak Creek. At a distance from the coast it is commonly a shrub 4–6 feet high. The leaves vary from narrowly oblong to broadly ovate. On old trees they are mostly entire, but on young shoots they are often sharply toothed.

QUERCUS EMORYI, *Torr. in Emory's Rep. p.* 152, *t.* 9. Q. pungens, & Q. hastata, *Liebm. l. c. p.* 171. Near the mouth of the Pecos and on the Limpio, Texas; *Bigelow, Parry.* Chihuahua; *Thurber.* Sonora; *Schott & Capt. E. K. Smith.*—A widely spread shrubby evergreen oak, with neat foliage and very small acorns. The small-leaved oak of Frémont, quoted by Liebmann under his Q. chrysolepis, seems to be a variety of this species. No. 664, *Wright*, belongs to the form called Q. pungens by Liebmann, in which the leaves are more deeply toothed or lobed than in the normal state.

QUERCUS AGRIFOLIA, *Née in Ann. de Cienc. Nat.* 3, *p.* 281, fide *Liebm.; Hook. Ic.* 3, *t.* 377. Q. oxyadenia, *Torr. in Sitgr. Rep. t.* 17, *& Bot. Whippl. Rep. p.* 138. Common on the mountains of California, from the Upper Sacramento to the southern boundary line; *Parry.* East of San Diego Dr. Parry saw trees of this oak which were 30 or 40 feet high. When growing singly, it has a round top like the Live Oak, throwing out branches a few feet from the ground and extending 30 feet or more from the trunk.

QUERCUS OBLONGIFOLIA, *Torr. in Sitgr. Rep. p.* 173, *t.* 19. Q. grisea, *Liebm. l. c. p.* 171. Mountains of the Limpio, Texas (*Bigelow*), and westward to the range east of San Diego, California; *Parry.* In Texas and western New Mexico this oak is commonly a shrub 6–15 feet high; but in California it sometimes attains the height of 20 or 30 feet. It has pale bark and spreading branches. The acorns vary considerably in form. To this species I refer No. 665 and 1866, *Wright.*

QUERCUS CHRYSOLEPIS, *Liebm. l. c. p.* 173; *Benth. Pl. Hartw. p.* 336. Q. crassipocula, *Torr. in Pacif. R. Road Expl.* 6, *p.* 365, *t.* 9. Q. fulvescens, *Kellogg in Proceed. Calif. Acad. Nat. Sc.* 1, *p.* 67 & 71; *Newberry l. c. p.* 27, *f.* 5. Mountains of California, from Oregon to the southern boundary line. An evergreen oak, 30–40 feet high, with pale bark. The heart-wood is dark-colored, and it is said to be good timber. The acorns are often of great size and the cups extremely thick, as represented in my figure of Q. crassipocula, but sometimes not larger than those of the Live Oak (Q. virens). We adopt Liebmann's earlier name for this beautiful species.

QUERCUS DUMOSA, *Nutt. Sylv.* 1, *p.* 7? Near San Diego, California; *Parry.* A shrub, 5–8 feet high, and very densely branched. The leaves are sempervirent, ovate, and 8–10 lines long. Our specimens accord well with Nuttall's description; but he did not see the acorns. These are sessile, solitary and in pairs, about three-quarters of an inch long; the cup hemispherical; the gland ovate-oblong, tapering to a point and scarcely more than one-third of an inch in diameter at the base. Dr. Parry states in his notes, that the leaves are sometimes larger and oblong.

QUERCUS ACUTIDENS (n. sp.): foliis oblongis coriaceis basi acutiusculis vel cuneatis inequaliter grosse dentatis, dentibus cuspidatis pungentibus supra glabris nitidulis subtus pallidis minute tomentosis; fructibus sessilibus solitariis; cupula hemispherica, squamis incrassatis; glande oblongo-ovata. (TAB. LI.) Near San Luis Rey, California; *Parry.*—"Generally a low shrubby bush; but sometimes a tree 20 feet high." The leaves are 1½–2 inches long and 8–10 lines wide. The acorns are more than an inch long and much resemble those of the White Oak (Q. alba).

QUERCUS CONFERTIFOLIA, *H. B. K. Pl. Æquin.* 2, *p.* 53, *t.* 94? Near the Copper Mines, New Mexico; *Thurber*; No. 1869, *Wright.* Sierra del Pajarito, Sonora; *Schott.* San Francisco mountain; *Captain E. K. Smith.*—A small tree. Liebmann seems to have referred it to Q. cinerea, as he includes that species in his list of New Mexican Oaks (doubtless of Wright's collection) which he examined in the herbarium of Sir William Hooker, and Mr. Wright found no other Quercus in New Mexico resembling Q. cinerea. Our plant has thickly coriaceous, lanceolate, acute leaves, which are 3–4 inches long, and from three-quarters of an inch to nearly an inch broad. They are commonly entire and revolute on the margin, but occasionally show 1–3 minute teeth, nearly smooth and pale green above, very densely yellowish-tomentose underneath. The acorns are nearly sessile, solitary and in pairs; the cup hemispherical with broad, obtuse, pubescent scales, and the unripe acorn is ovate. Q. cinerea differs in its much thinner non-revolute leaves, and thin pale pubescence. The acorns also seem to differ, but we have not seen the ripe ones of Q. confertifolia.

RAFFLESIASÆ.

PILOSTYLES THURBERI, *Gray, Pl. Thurb. in Mem. Amer. Acad. n. ser.* 5, *p.* 326. (TAB. LII.) On a mountain near the Gila, June, parasitic on the branches of Dalea Emoryi; *Thurber.*

CONIFERÆ

EPHEDRA ANTISIPHILITICA, *Berland.; C. A. Meyer, Ephedr.* 101, *ex Endl. Syn. Conif. p.* 263. Western Texas, from the Nueces to the Rio Grande, and from Frontera to Eagle Pass, April, May. San Diego, California; *Parry.* Ranconado Pass, Cohahuila; *Thurber.* Between Mapami and Guajaquilla, Durango; *Gregg*, (No. 1882 and 1883, *Wright.*) The Mexicans call the plant

Tepopote and Cañatilla, and use a decoction of it as a remedy for gonorrhœa. It is a shrub about two feet high with numerous branches, the sheaths of which are short, 2–3-cleft, the divisions lanceolate or subulate, spreading or recurved, at length deciduous. Sterile aments opposite or aggregated at the nodes. Anthers mostly 4. Fertile opposite, 1–2-seeded. The sheaths of the ament mostly 4, deeply 2-cleft and somewhat fleshy. Seeds smooth, when in pairs flattened on the face, when solitary they are larger and obtusely triangular, nearly twice as long as the inner scales. Tube of the micropyle very obliquely truncated.

There are numerous specimens in the Mexican Boundary Collections, of an Ephedra, found at Frontera and near Doña Ana, which may be a distinct species, but I suspect it is an abnormal state of E. antisiphilitica. It is a shrub of 3 to 5 feet in height. The fertile aments are ovate-oblong, and instead of four decussating pairs of connate thickish, or at length succulent scales, there are from 16 to 20 very broad, entire, thin and membranaceous scales, which are distinct, contracted into a short stipe at the base, and irregularly inserted on the axis. They are at first loosely imbricated, but at length more or less spreading. The seed (immature) is ovate with a tapering point, and except the long obliquely truncated micropyle, is wholly covered with the scales.

Another Ephedra occurs at Fronteras, and it has also been found at Ojo de Vaca in Chihuahua, by Mr. Thurber. It resembles the one just noticed, but the scales, though equally numerous and arranged in the same manner, are smaller and less membranaceous. They are also minutely erose-serrulate. The seeds, however, are roughened with minute points which are sometimes disposed in short transverse rows, so that, unless pretty highly magnified, they look like wrinkles of the testa. The micropyle is conspicuously exserted beyond the scales. There are usually but two seeds in each fertile ament, but not unfrequently three. The arrangement of the scales of the fertile aments in these two Ephedræ is so much at variance with the character of the genus, that it seems most probable they are abnormal forms.

Pinus edulis, *Engelm. in Wisliz. Rep. p.* 88; *Torr. in Bot. Sitgr. Rep. p.* 173, *t.* 20, *& in Bot. Whippl. Rep. p.* 140. P. Fremontiana, *Gord. in Jour. Hort. Soc. Lond.* 4, *p.* 293, *cum ic. xyl.; excl. Syn. Endl. & Torr.* Mountains of western Texas, near the Rio Grande, New Mexico, Chihuahua, and Sonora. (No. 1889, *Wright;* No. 830, *Fendler;* New Mexico.) The cones and nuts greatly resemble those of the next species. The leaves are almost always in pairs, very rarely in threes. Gordon, in the work just quoted, refers this species to P. monophylla, *Torr. & Frém.*, the name of which, he says, was changed to P. Fremontiana by Professor Endlicher, (*Syn. Conif. p.* 183,) because that botanist having "afterwards examined more perfect specimens, found that the leaves were in twos and threes, and that the solitary leaves arose from Dr. Torrey's specimens being gathered from stunted plants." Now, we find that Endlicher in his Synop. Conif. has no remarks of this kind. His entire description is taken from mine in Frémont's 2d Report; but he regards what I call a single leaf, as consisting of two united leaves. Col. Frémont found extensive forests of the tree in his first expedition, as well as in his journey of 1853–'54. Dr. Bigelow also found it in Whipple's expedition on the mountains of California, but in consequence of an oversight it was not included in the Botanical Report of that expedition. The characters appearing to be so constant, I retain the species, and wait for additional observations on the plant in its native places of growth. It would be desirable, also, to test the constancy of the species by cultivation. Gordon's figure (l. c.) represents the ordinary state of P. edulis.

Pinus Llaveana, *Scheide & Deppe in Linnæa,* 12, *p.* 488. P. cembroides, *Newberry, in Pacif.*

Railroad Rep. 6, (*Bot.*) *p.* 44, *cum ic. xylog.* non *Zucc.* (TABLE LIII.) On the mountains east of San Diego; *Parry.* "A tree 30 or 40 feet high, and often 12 to 18 inches in diameter, with a round, even head. The young trees remarkably symmetrical, like some cedars, with the broad base resting on the ground, the trunk and branches being completely hidden by the dense foliage. The upper branches are usually loaded with cones." The leaves are mostly in fours, but sometimes in threes, and often in fives. They are crowded towards the summit of the branches, 1½ to 2 inches long, and a little curved. Cones about 2 inches long, globose-ovate, disposed near the extremity of the last year's growth, and are at a right angle to the branch. They are often somewhat gibbous, the convexity being upward. The scales are few, with the summit obtusely pyramidal. Seeds obovate, wingless, large for the size of the cone, with a thin fragile shell, and an edible kernel. The Indians collect large quantities of them for food. When fresh and slightly roasted they are very palatable. There can be little doubt of this being distinct from the Pinus cembroides of Mexico. The leaves of the latter are shorter and constantly in threes, and the cones are three or four times larger, with much more numerous scales.

PINUS PONDEROSA, *Dougl.; Newberry, l. c. p.* 36, *cum ic. xylog.* P. Engelmanni, *Torr. in Bot. Whipp. Rep. p.* 141. P. brachyptera, *Engelm. in Wisliz. Rep. p.* 89. Mountains near the Copper Mines, New Mexico. The leaves in some of the specimens are ten inches long. Dr. Newberry, who had abundant opportunity of studying the forest trees of New Mexico, California, and Oregon, in their native place of growth, has clearly shown (as we think) that P. brachyptera, *Engelm.*, is identical with the earlier published P. ponderosa, *Douglas*, to which species he also refers P. Benthami, *Hartw.*, and P. Beardsleyi, *Murr. in Edinb. New Phil. Jour.* 1855, *p.* 286.

PINUS MURICATA, *D. Don in Linn. Trans.* 17, *p.* 441; *Lindl. in Jour. Hort. Soc. Lond.* 4, *p.* 216, *cum ic. xylog.* P. Edgariana, *Hartw. l. c.* 3, *p.* 217. (TABLE LIV.) Near Monterey, California; *Parry* A small tree, seldom more than 15 or 20 feet high. Leaves of a deep vivid green. Our cones (which are, perhaps, not quite mature) are smaller than the one figured in the Hort. Trans. l. c.

PINUS CHIHUAHUANA, *Engelm. in Wisliz. Rep. p.* 103? Hills at the Copper Mines, New Mexico; *Bigelow.* (No. 1888, *Wright.*) Our specimens accord well with Dr. Engelmann's description, except that the apex of the scale, instead of being pointless, is armed with a small recurved prickle; but this is very fragile, and may have been rubbed off in the specimens collected by Wislizenus. The cones (not mature) are conical-ovate, rather pointed, about 2 inches long, and an inch and a quarter near the base. The leaves are remarkably slender.

PINUS INSIGNIS, *Dougl. in Loud. Arboret.* 4, *p.* 2265, fig. 2170–2172; *Torr. in Whipp. Rep. p.* 141. P. tuberculata and P. radiata, *D. Don.*—(Tab. LV.)—Near Monterey, California; *Parry.* Hartweg remarks (*Hort. Jour.* 2, *p.* 123) that in close woods, a mile or two from the shore, the leaves and cones are much larger than when the tree grows near the beach. Cones usually 3 or 4 together, and pendulous. They are almost always imperfect on one side, and thus are more or less gibbous.

PINUS DEFLEXA (n. sp.): foliis ternis longissimis (7–8-unc.) tenuibus, vaginis brevibus; strobilis ovatis acutis; squamarum apophysi compresso-pyramidata deflexa, umbone lato-uncinato recurvo; seminibus ala duplo brevioribus. (Tab. LVI.) Summit of the Cordilleras of California; *Parry.* "A handsome tree, with an even columnar trunk." This species is closely allied to P. rigida

of the Atlantic States, but is sufficiently distinct. I have not been able to refer it to any Californian or Mexican pine hitherto described.

PINUS SABINIANA, *Dougl.; Lamb. Pin.* (*ed.* 2) 2, *p.* 146, *t.* 80; *Endl. Syn. Conif. p.* 159. (Tab. LVII.) Mountains east of San Diego, California; *Parry.* One of the largest of the California pines, being often from 60 to 100 feet high, and the trunk 2 to 4 feet in diameter. It is remarkable for its spreading branches, and for its large heavy cones with strong hooked scales. The nuts are large and edible. Immense quantities of them are collected by the California and Oregon Indians, who depend upon them for a large portion of their winter food.

PINUS TORREYANA (*Parry MSS.*): foliis quinis elongatis (6–9-unc) rigidis, vaginis squamosis (5–10-lin.) strobilis subglobosis, squamarum apophysi elongato-pyramidata deflexa, umbone continuo obtuso subrecurvo. (TAB. LVIII and LIX.) Bluffs near the mouth of Solidad creek, 10 miles north of San Diego, California; *Parry.* A small tree, seldom more than 20 or 30 feet high, with a trunk 12 to 15 inches in diameter; often almost prostrate from its being exposed to strong ocean gales. Bark of the young branches whitish; the lower part of the trunk scaly. Branches horizontal, but curved upward towards the extremity. Leaves stouter than in any other North American pine, rough on the margin, abruptly pointed, the sheaths nearly two lines in diameter and an inch and a half long in the young leaves. Cones conical-globose, about 4½ inches long. Seeds, without the wing, three-fourths of an inch long, with a thick bony shell. This is the only pine of the section Pseudo-strobus found within the limits of our flora. P. Apulcensis which resembles it, differs in its more slender and shorter leaves, and ovate smaller cones, &c. It is also allied to P. Orizabæ, *Gordon in Lond. Hort. Jour.* 1, *p.* 237 *cum icon.*, but that has very slender leaves, which are extremely rough on the angle, and ovate cones.

PINUS LAMBERTIANA, *Dougl. in Linn. Trans.* 15, *p.* 50; *Lamb. Pin.* (*ed.* 2) 1, *p.* 57, *t.* 34; *Newberry, l. c. p.* 42, *fig.* 14. On the mountains east of San Diego, California; *Parry.*

ABIES DOUGLASII, *Lindl.; Nutt. Sylv.* 3, *p.* 136, *t.* 117; *Hook. Fl. Bor.-Amer.* 2, *p.* 162, *t.* 115; *Newberry, l. c. p.* 54. *fig.* 20 *& t.* 8. Mountains east of San Diego, California; *Parry.* Mountains of western Texas and New Mexico; *Bigelow.* A noble tree, 50–100 feet high. In Oregon it sometimes attains the height of 300 feet.

TAXODIUM DISTICHUM, *Rich. Conif. p.* 52, *t.* 10. Cupressus disticha, *Linn.; Michx. f. Sylv.* 2, *p.* 329, *t.* 151. Valley of the Rio Grande below the mouth of Los Moros, in western Texas, Cohahuila, and Neuvo Leon. (No. 2213, *Berlandier.*) Below the Salado this noble tree is often seen in the river itself, sometimes where the water is 16 feet deep and the current strong; *Schott.* Dr. Bigelow found it at Santa Rosa, Cohahuila, flowering in January.

SEQUOIA SEMPERVIRENS, *Endl. Conif. p.* 198; *Newberry, l. c. p.* 57, *fig.* 23. Taxodium sempervirens, *Lamb. Pin.* (*ed.* 2) 2, *t.* 64. Woods in the Coast Range of mountains east of Monterey, south of which it is very rare. This is the celebrated *redwood* of California; the most valuable timber tree of that State.

JUNIPERUS TETRAGONA, *Schlecht.* var. OSTEOSPERMA, *Torr. in Whippl. Rep. p.* 141. Dry rocky places, San Felipe, &c., California; *Parry.* A much branched shrub of regular conical form, 6–13 feet high.

JUNIPERUS PACHYPHLÆA, *Torr. l. c.* Hill sides, western Texas, New Mexico, Chihuahua, and Sonora. The fruit varies from 3 to 5 lines in diameter, and is sometimes only two-seeded. When unusually large it sometimes contains 4 and even 5 seeds.

JUNIPERUS OCCIDENTALIS, *Hook. Fl. Bor.-Amer.* 2, *p.* 166; *Torr. l. c.; Newberry l. c. p.* 59, *t.*

10. J. Andina, *Nutt. Sylv.* 3, *p.* 95, *t.* 110. Rocky places, valley of the Pecos; *Bigelow.* It is also a native of California and Oregon.

Juniperus Virginiana, *Linn.; Michx. Sylv.* 2, *p.* 353, *t.* 156. Rocky hills, western Texas; *Bigelow.*

Libocedrus decurrens, *Torr. in Smithson. Contrib.* 6, *p.* 7, *t.* 3, *& in Whippl. Rep. p.* 140. Summit of the mountains east of San Diego, California; *Dr Parry.* A noble tree; sometimes 150 feet high. The wood resembles that of the white cedar.

Thuja gigantea, *Nutt. in Jour. Acad. Phil.* 7, *p.* 52; *& Sylva.* 3, *p.* 102 *t.* 111; *Newberry, l. c. p.* 57, *fig.* 22. Near San Diego and other parts of California; *Parry.* This is the *Arbor vitæ* of California and Oregon. It occurs as far north as Nutka Sound.

Cupressus macrocarpa, *Hartw. in Jour. Hort. Soc. Lond.* 2, *p.* 187, *&* 4, *p.* 296, *cum icon. xylogr.* C. Macnabiana, *Murray in Edinb. New Phil. Jour., April,* 1855? Near the seashore at Monterey, California; *Parry.* A tree often 30 feet or more in height, with a trunk 18 inches in diameter. Hartweg states that he has seen it 60 feet high, with a trunk of 3 feet in diameter. The head is usually depressed and very dense. Branchlets distinctly quadrangular, rigid, and stouter than in J. Virginiana. Leaves closely imbricated, rhombic-ovate, obtuse, very thick, depressed each side of the blunt keel. Sterile aments globose-ovate, 1½ line long. Anthers 4-celled. Fruit the size of a large nutmeg, globose. Scales 6, thick and woody, irregularly 4 to 5-angled, each with a strong excentric protuberance or blunt point. They are closely joined at first, but at length separate from one another. Seeds 6 to 8 under each scale, angular by compression, narrowly winged.

Cupressus Goveniana, *Gordon in Jour. Hort. Soc. Lond. l. c. p.* 295, *cum icon. xylogr.* On the mountains east of San Diego, California; *Parry.* A shrub 6 to 10 feet high, slender, and moderately branched. Leaves as in C. macrocarpa, except that they are less appressed. Sterile aments numerous, oblong. Fruit 4 to 6 lines in diameter; scales 10, mucronate in the depressed centre. Dr. Parry thinks he has seen forms intermediate between this and the last species, but none such were among his specimens.

LEMNACEÆ.

Lemna trisulca, *Linn.; Kunth, Enum.* 3, *p.* 5; *Torr. Fl. N. York,* 2, *p.* 246. On the San Felipe creek below the mouth of the Pecos; *Bigelow, Schott.* On the Mimbres, New Mexico; *Thurber.* (No. 1890, *Wright.*)

Lemna minor, *Linn.; Kunth, l. c.; Torr. l. c.* In running water, San Luis Rey, California, associated with Azolla; *Parry.* Cimieluque Springs, Chihuahua; *Bigelow.* (No. 1892, *Wright.*) The specimens are without flowers or fruit, so that we are not certain of the species.

Lemna polyrrhiza, *Linn.; Kunth, l. c.; Torr. l. c.* On the surface of water, borders of the Limpia and other streams, Texas; *Bigelow.* Cimieluque Springs, Chihuahua; *Wright.*

TYPHACEÆ.

Typha latifolia, *Linn.; Kunth, Enum.* 3, *p.* 90; *Torr. Fl.* 2, *p.* 247. In water, Painted Caves, western Texas; *Bigelow.*

NAIADACEÆ.

Naias flexilis, *Rostk.; Kunth, Enum.* 3, *p.* 114. N. Canadensis, *Michx. Fl.* 2, *p.* 220; *Torr. Fl. N. York,* 2, *p.* 250. Western Texas; *Bigelow, Wright.*

Zannichellia palustris, *Linn.; Kunth, Enum.* 3, *p.* 124; *Torr. l. c. p.* 253. Slow-flowing streams and stagnant waters, western Texas, Chihuahua, and Sonora.

Potamogeton pectinatus, *Linn.; Torr. Fl. New York*, 2, *p.* 247. P. marinum, *Linn.*; *Michx. Fl.* 1, *p.* 102. Flowing water near San Diego, California; *Parry.* Tucson, Sonora; *Schott.* (No. 1895, *Wright.*)

Potamogeton hybridus, *Michx. Fl.* 1, *p.* 101; *Torr. l. c.* In water on the prairies of the Guadalupe river, Texas, May; *Wright.*

Potamogeton pauciflorus, *Pursh, Fl.* 1, *p.* 121; *Torr. l. c.* P. gramineus, *Michx. Fl.*, *p.* 102, non *Linn.* Stagnant water of the Limpio, July; *Bigelow.*

Potamogeton lucens, *Linn.; Kunth, Enum.* 3, *p.* 132; *Torr. l. c. p*, 255. San Antonio, Texas, to the Rio Grande.

Potamogeton nutans, *Linn.; Kunth, Enum.* 3, *p.* 127; *Torr. l. c. p.* 253. Waters of the Limpio, Texas; *Bigelow.* Ojo Caliente, Chihuahua; *Thurber.* Los Noyales, Sonora; *Capt. E. K. Smith.*

ALISMACEÆ, by Dr. George Engelmann.

Sagittaria simplex, *Pursh, Fl.* 2, *p.* 397; *Gray, Man. ed.* 2, *p.* 439. In ponds, western Texas; *Wright.*

Sagittaria calycina (Engelm. MSS): pedicellis fertilibus sterilia æquantibus; fructiferis recurvatis; floribus omnibus hermaphroditis, fertilibus subdodecandris, sterilibus polyandris ovaria pauca sterilia gerentibus; filamentis subulatis læviusculis seu tenuiter papillosis antheram late ovatam subæquantibus seu paullo superantibus; stylo erecto ovario longiore in carpellis maturis obovatis duplo longioribus horizontali; sepalis orbiculatis carpellorum capitatum arcte involventibus.

Var. *α.* maxima: foliis maximis sinu latissimo hastatis, lobis divaricatissimis tenuiter subulato-appendiculatis; scapo robusto ramoso; bracteolis lanceolatis acutis; verticillis fructiferis pluribus capitulis magnis.—On the Red river, Louisiana; *Dr. Hale.*

Var. *β.* media: foliis minoribus sinu latissimo hastatis lobis divaricatis s. divaricatissimis acuminatis; scapo debili simplici verticillo infimo solum (raro duobus) fructifero; bracteis ovatis obtusis; capitulis minoribus.—Saline swamps, Jefferson county, Missouri; *Engelmann.*

Var. *γ.* fluitans: foliis oblongo-linearibus fluitantibus; scapo debili verticillis sæpe 1–2-floris; bracteis obtusis; pedicellis elongatis inequalibus; capitulis minoribus.—Ponds and slow-flowing waters, western Texas. *Wright*, No. 1899. Also in Missouri, and in the Merrimac river, Massachusetts; *Engelmann.*

[Dr. Bigelow collected near San Elceario, on the Rio Grande, a Sagittaria which was overlooked when Dr. Engelmann revised the genus in my herbarium in 1856. It seems to be the same as a plant from western Texas, which Dr. E. named, provisionally, *S. longiloba*, and which he regarded as very near S. simplex. We can find no sufficient characters for distinguishing it from that species. The leaves, however, are sagittate, with very long, narrow, and widely diverging lobes, a state in which we have never seen S. simplex. J. T.]

ORCHIDACEÆ.

Platanthera leucostachys, *Lindl. Gen. & Spec. Orch. p.* 288 ; *Hook. Fl. Bor.-Amer.* 2, *p.* 198. Santa Cruz, Sonora ; *Thurber.* Near Montery, California, June. (No. 1900, *Wright*, a slender variety.) We have what we regard as the same species, from Mokelumne and Monterey, California, collected by Mr. Rich, and from Observatory Inlet, British America. Mr. Rich's specimens show a transition from the stouter form, with a dense inflorescence, to the slender variety, with more scattered flowers, of the plant collected by Dr. Parry.

Platanthera dilatata, *Lindl. p.* 287 ; *Torr. Fl. N. York*, 2, *p.* 267. Mountains east of San Diego, California, May ; *Parry.*

Epipactis gigantea, *Dougl. in Hook. Fl. Bor.-Amer.* 2, *p.* 202, *t.* 202. Moist ravines near the mouth of the Pecos ; *Bigelow.* (No. 1901; *Wright.*) The leaves in Mr. Wright's specimens are narrower than in the Californian plant, but in Dr. Bigelow's they are quite as broad.

Bletia aphylla, *Nutt. Gen.* 2, *p.* 194. Western Texas ; *Wright.* Sepals deep brownish purple. Petals dull brownish yellow ; the 3-lobed lip with 5 broad plaits or folds, purplish.

AMARYLLIDACEÆ.

Habranthus Andersoni, *Herb. in Lindl. Bot. Reg. t.* 1345 : Var. Texanus, *Bot. Mag. t.* 3596. Western Texas, from San Antonio to the Rio Grande, October. The peduncles are often 6 inches long. (No. 1904, *Wright.*)

Cooperia pedunculata, *Herb. Amaryll. p.* 179, *t.* 42, *f.* 3–5, *& in Bot. Mag. t.* 3739. Prairies, Texas, from the Blanco river to the Rio Grande ; also in Nuevo Leon, March—October. (No. 1902, *Wright.*)

Cooperia Drummondi, *Herb. in Bot. Reg. t.* 1835. On hills San Antonio, Texas, to the Rio Grande, August—October. (No. 1902, *Wright.*)

Agave Americana, *Linn. Sp. p.* 461 ; *Kunth, Enum.* 5, *p.* 819. Western Texas, bordering the Rio Grande, and in the Mexican States, west ; also on the Gila. (No. 1906, *Wright?*) This is one of the species called *Maguey* by the Mexicans. It is an exceedingly useful plant, as will be seen from Mr. Schott's notes. In many parts of Mexico, where it is now very common, it has doubtless been introduced.

Agave Americana, β? latifolia : foliis ovatis acuminatis ; floribus minoribus. Hills near the Copper Mines of New Mexico ; *Emory ;* and near Rock Creek ; *Bigelow.* The leaves are more than a foot long and 4 or 5 inches wide, forming a cone which is from 2½ to 3 feet in diameter ; the margin armed with short spreading or reversed prickles. From the centre rises a flower stalk to the height of 10 feet. Only the withered and somewhat persistent flowers were collected. These are scarcely one-third as large as those of the narrower leaved plant. The capsule is smooth, oblong, an inch and a half long, and three-fourths of an inch in diameter. We are yet in doubt as to whether this is a distinct species from A. Americana. Both are called *Maguey* in some parts of New Mexico and on the Gila, but sometimes the latter only is so named, and the other Mescal.

Agave Lecheguilla (n. sp.?): foliis anguste lanceolatis crassis patulis margine remote aculeatis ; spica longissima ; floribus subsessilibus sæpissime per paria approximatis ; perianthii segmentis (uncialibus) erectis.—Mountains near El Paso, and along the Rio Grande downward ; common, growing in patches, May—June. (No. 682 and 1907, *Wright.*) Caudex 4–6 inches

high. Leaves 12–15 inches long and 1–1½ inch wide, thick, rounded underneath and somewhat channelled above, terminating in a stout spine, the margin armed with short strong hooked prickles, which are usually reversed. Scape 6–10 feet long, the upper part pretty thickly covered with flowers, which are mostly in pairs (the lowest in threes) and arise from very short (1–2 lines) forked peduncles or branches. Bracts lanceolate from a broad clasping base, 2 lines long, deciduous. The perianth above the ovary is about an inch long, white with a tinge of yellow, and the segments are narrowly-oblong. Stamens and style much exserted. Stigma clavate, obtuse, obscurely 3-lobed. Capsule about an inch long and half an inch in diameter, erect, obtusely triangular, with a short abrupt acumination. Seeds in a double series, semiorbicular, compressed vertically, black and shining. We cannot identify this species among those described by *Kunth* and later writers. The fibres of the leaves are used for making coarse ropes, bagging, etc.

Agave geminiflora, *Gawl. in Brand's Jour. Sc.* 1, *t.* 1? var. Sonoræ: foliis angusto-linearibus elongatis crebris superne concavis, subtus rotundatis, apice terretibus convolutis in spinam terminalem excurrentibus, margine filamentosis; spica longissima, floribus per paria approximatis; perigoniis (uncialibus) tubuloso-infundibuliformibus.—Sierra del Pajarito, Sonora, August; *Schott.* Leaves all radical, 6–12 inches long and 3–4 lines wide; the margin splitting off into very fine white threads and entirely destitute of spines or serratures. Scape (including its spike) 5–6 feet high. The flowers in pairs on very short erect stalks. The perianth above the ovary is about an inch long, with a somewhat funnel-form tube, and narrowly oblong segments, which are at first a little spreading, but afterwards erect. Stamens and style exserted and the linear anthers, as usual, very large for the size of the flower.

✓Agave parviflora (n. sp.): acaulis; foliis lineari-lanceolatis basi valde dilatatis infra medium margine catilagineo-denticulatis, ultra medium filamentosis; spica elongata; pedunculis brevissimis dissitis 2–4-floris; perianthiis (vix semiuncialibus) subcampanulatis, laciniis breviovatis; capsulis subglobosis.—On various sierras of Pimeria Alta, Sonora; *Schott.* Leaves all in a radical cluster, 2½–3 inches long and about half an inch wide, thick, much dilated at the base; the margin below the middle furnished with minute but evident cartilaginous teeth, while on the upper half the margin bears rather stout white threads; the spiny tip is not more than 2–3 lines long. Scape 4–5 feet long; the clusters of flowers more scattered than in the last species. Only the withered persistent flowers were collected. These when soaked were scarcely half an inch long and whitish with a tinge of rose-color. Stamens and style exserted. Capsule 4–5 lines long and of nearly the same diameter. Seeds as in the last species. This is possibly A. filifera, *Salm-Dyck,* a species of which the flowers and fruit are not described.

Agave Virginica, *Linn.; Michx. Fl.* 1, *p.* 187; *Kunth, Enum.* 5, *p.* 833. Hills on the Rio Grande from El Paso down to Laredo, April—August. (No. 683 and 1905, *Wright.*)

I subjoin a description, by Dr. Engelmann, of a species of Agave found at Eagle Pass on the Rio Grande, (probably collected by Mr. Schott,) of which there are no specimens in the collections:

Agave maculata (Engelm.): radice crassa cylindrica nigra; foliis radicalibus lanceolato-linearibus longe acuminatis subtus convexis supra profunde concavis recurvatis glaucis maculis atro-virentibus notatis, margine albido cartilagineo-dentatis apice acutis nec spinescentibus; scapo basi foliis paucis instructo; floribus in spicam simplicem dispositis brevissime pedicellatis; tubo corollæ superne vix ampliato, laciniis lineari-oblongis rotato-patentibus.—Eagle Pass on

the Rio Grande. Root 6–8 lines in diameter, 4–6 inches long, black, with long thick white fibres. Leaves 4–6 inches long, ½ an inch wide, deeply channelled, but not carinate, very glaucous, the dark greenish brown blotches more distinct on the upper than the lower surface. Scape 1½–2 feet high. Spike about 6 inches long, with 12–15 flowers. Bracts subulate, longer than the pedicel, which is about one line long and articulated in the middle. The flowers, which are of musky not disagreeable odor, are about 20‴ long; ovary 6‴, tube 9‴, the limb about 6‴. Laciniæ of the perianth at first green, afterwards on both sides (with the filaments) of a dirty purplish color Evidently near A. revoluta, *Klotzsch;* but that species has smooth-margined leaves; limb of the perianth equal to the tube; stamens free in the tube and longer than the limb. To Polyanthes Mexicana, Zucc. (which Kunth in Enum. 5, p. 847, says, is probably a species of Agave) it is still more nearly related, but that has leaves entire on the margin, with reddish dots; flowers white, in pairs and sessile, the tube 18 lines long, segments only 3–4 lines long. Capsule (immature) ovate-oblong obtusely triangular. Nothing is said of the fragrance of the flowers.

BROMELIACEÆ.

TILLANDSIA RECURVATA (*Linn.; Le Conte in Ann. Lyc. N. York*, 2, *p.* 132): cæspitosa; foliis subdistichis filiformibus teretibus anguste canaliculatis cinereo-lepidotis recurvatis; pedunculis folio longioribus unifloris glabriusculis; bracteis 2–3 acuminatis calyce longioribus.—On trees, near the Rio Coleto, Texas; *Thurber.* On oaks and grape vines, Los Moros; *Bigelow.* Lower Rio Grande; *Schott.* San Fernando, Mexico; *Berlandier*, No. 818. The specimens are all in fruit, and the peduncles mostly one-flowered.

TILLANDSIA USNEOIDES, *Linn.; Ell. Sh.* 1, *p.* 379; *Le Conte, l. c.* On trees, western Texas, not found on the Rio Grande above the mouth of the Pecos.

DASYLIRION TENUIFOLIUM (n. sp.): caudice brevissimo; foliis linearibus gramineis planis vix rigidulis nitidis margine spinuloso-scaberrimis; panicula elongata, ramis simplicibus distantibus sublaxifloris, basi subnudis; pedicellis flore sublongioribus; fructibus membranaceis, lobis carinatis vix alatis; seminibus oblongo-obovatis. Among rocks, borders of the Sabinal river; *Wright*, (No. 1919.) Stony places on the high plateau of the upper Guadalupe, Texas; *Lindheimer.* Caudex short and almost subterranean. Radical leaves about a foot long, 2–2½ lines wide, bright green and shining on both sides, much thinner in texture than in any other species of this genus, those of the scape gradually smaller. Stem or scape (including the panicle) about 3 feet high. Branches of the panicle 2–3 inches long. Flowers solitary or somewhat fasciculate. Perianth scarcely a line and a half in diameter. Ovary 3-celled, with 2 erect ovules in each cell; stigmas 3, oblong, sessile. Fruit rather broader than long, 3-lobed, one or two of the seeds commonly abortive. Seed minutely reticulate-rugose. Remarkable for the thin leaves and long naked panicle.

DASYLIRION GRAMINIFOLIUM, *Zucc. Pl. Nov. v. Min. Cog. fasc.* 4, *p.* 225, *t.* 1. Hill sides and table land, western Texas, New Mexico, Chihuahua, and Sonora, westward to the Colorado. Neuvo Leon; *Berlandier*, (No. 3211. No. 694, *Wright.* No. 70, 212, 212, 419, and 549, *Fendler.*) Caudex 3–5 feet high, the upper part clothed with the long spiny-serrated recurved leaves. Scape 6–8 feet high. Flowers in a long dense panicle of close spikes, which are subtended by broadly lanceolate clasping foliaceous spathes. The male flowers with a sterile ovary, and the female with sterile anthers. Bracts and bracteoles broadly ovate, acuminate

serrate-lacerate, scarious. Perianth white; the segments obovate, concave. Ovary ovate, obtusely triangular, one-celled, with 6 anatropous erect ovules at the base of the cavity. Fruit coriaceous, narrowly winged, indehiscent. Seed 3-sided, with obtuse angles, smooth. Embryo cylindrical, in the axis of horny albumen, which it nearly equals in length. D. Texanum *Scheele*, seems to be hardly distinct from this species.

Dasylirion Bigelovii, *Torr. Bot. Whipp. Rep. p.* 151. Sierra del Tule y Tinaja Alta, Sonora; *Schott.* "Stem 6 feet high, and 2–3 feet in diameter." Leaves 3–5 feet long, and nearly an inch in diameter about the middle, flat; the margin a little rough, and sometimes separating into threads. "Scape 6–8 feet long. Raceme 1–1½ foot long, and nearly a foot in diameter at the base." Fruit papyraceous, 1 or 2 of the cells usually sterile, not opening by regular dehiscence, but by the rupture of the thin walls. Seeds oblong-obovate, whitish, dull, slightly reticulated. Embryo slender, cylindrical, in the axis of horny albumen.

Dasylirion Lindheimerianum, *Scheele in Linnæa*, 25, *p.* 362. High plains and hill sides near the Copper Mines, New Mexico; *Bigelow.* El Podrero, Sonora; *Schott.* (No. 693, *Wright.* No. 213, 297, 551, 552, *Lindheimer.*)—All our specimens are in fruit. Leaves a yard long, and about 3 lines wide towards the base, channelled above, rounded underneath. Pedicels filiform, thickened and triangular at the base of the flower. Fruit membranaceous, nearly twice as broad as long, and exceeding the pedicels in length, conspicuously 3-winged, only one of the cells usually fertile, and this containing but a single obovate seed.—This species seems to be very like D. Hartwegianum, *Kunth.* D. Bigelovii, which it also resembles, differs in its much larger fruit, broader leaves, and short pedicels.

Dasylirion erumpens (n. sp.): foliis lineari-ensiformibus e basi non attenuatis superne angusto-filiformibus supra canaliculatis infra semiteretibus margine serrulato-scabris; spathis e basi lata longissime angustissimeque attenuatis; pedicellis vix flore æqualibus; fructibus trilobis trilocularibus lobis carinatis vix alatis; seminibus globosis. Hills and gravelly places, western Texas and New Mexico, June. (No. 1918, *Wright.*) Leaves 2½–3 feet long, about 3 lines wide toward the base, tapering to a long, almost filiform extremity, rigid; the margin rough, with minute cartilaginous serratures. Panicle compound; the spathaceous bract at the base of each primary branch dilated and clasping below, then tapering to a long filiform point. Pedicels jointed near the middle. Flowers white, about 2 lines long, the male (as usual) bearing imperfect anthers, and the female an infertile ovary. Capsule with one or two of the cells often without seeds, the angles prominent and acute, but not winged. Seeds when near maturity, bursting the pod, and then remaining for some time attached to the placenta.

IRIDACEÆ.

Iris macrosiphon, *Torr. Bot. Whip. Rep. p.* 144. Near San Francisco, and in Napa county, California, March; *Thurber.*

Sisyrinchium Bermudiana, *Linn.*; var. mucronatum. San Diego, California, May; *Thurber.* Western Texas; common along the Rio Grande; also in New Mexico, near the Copper Mines. S. minus, *Engelm. & Gray*, (*Pl. Lindh.*, No. 313,) can hardly be considered a distinct species from this, as intermediate forms not unfrequently occur.

Nemastylis acuta, *Engelm. & Gray, Pl. Lindh.* 1, *p.* 27 (*adnot.*) N. geminiflora, *Nutt. in Trans. Amer. Phil. Soc.* (*n. ser.*) 5, *p.* 157. Ixia acuta, *Bart. Fl. N. Am.* 1, *t.* 76. Western Texas, *Thurber.* Mountains of Muerte; *Bigelow.*

Trifurcia cærulea, *Herb. in Bot. Mag. sub t.* 3779. Prairies of the Colorado, Texas; *Wright.*

SMILACEÆ.

Smilax tamnoides, *Linn. sp. p.* 1460. Piedra Pinta, western Texas (in fruit); *Bigelow.* An extremely variable species, of which S. Bona nox, S. hastata and S. pandurata are doubtless mere varieties. My friend, Dr. Chapman, who has carefully studied, in a living state, the Florida species of this genus, thinks that S. Beyrichii, S. Sprengelii and S. hederæfolia of Kunth are also forms of S. tamnoides.

Trillium sessile, *Linn. Spec. p.* 284, var. angustipetalum, *Torr. Bot. Whippl. Rep. p.* 151. Moist places near Monterey and San Luis Obispo, California, March—April; *Parry.* Napa county, in the same State; *Thurber.*

LILIACEÆ.

Fritillaria lanceolata, *Pursh, Fl.* 1, *p.* 230. F. mutica, *Lindl. Bot. Reg. fol.* 1663? (Tab. LXI.) In pine woods near Monterey, California, February—April; *Parry;* also in Napa county; *Thurber.* The leaves of Dr. Parry's specimens are unusually narrow.

Fritillaria Kamtschatcensis, *Fisch. in Hook. Fl. Bor.-Am.* 2, *p.* 181, *t.* 193, *A.* San Lusi Rey and San Luis Obispo, California; *Parry.*

Calochortus uniflorus, *Hook. & Arn. Bot. Beech. p.* 398, *t.* 94. Monterey, California, May; *Parry.*

Calochortus venustus, *Benth. in Hort. Trans.* (*n. ser.*) 1, *p.* 411, *t.* 15, *f.* 3. Monterey, California, May; *Parry.* Near the Copper Mines, New Mexico, May—June; *Bigelow.* San Luis mountains, Sonora; *Capt. E. K. Smith.*

Calochortus luteus, *Dougl.; Lindl. Bot. Reg. t.* 1661. San Diego, California, May; *Parry.*

Calochortus splendens, *Benth. l. c. p.* 411, *t.* 15, *f.* 1. San Diego, California, May—June; *Parry, Thurber.*

Cyclobothra alba, *Benth. l. c. p.* 413, *t.* 14, *f.* 3. Monterey, California, May; *Parry.*

Allium cernuum, *Roth; Bot. Mag. t.* 1134; *Kunth, Enum.* 4, *p.* 435. Hills near the Copper Mines, New Mexico, July; *Bigelow.* (No. 1913, *Wright.* No. 848. *Fendler.*)

Allium reticulatum, *Nutt. in Fraser, Cat.; Hook. Fl. Bor.-Am.* 2, *p.* 184, *t.* 195; *Kunth, l. c.* Hill sides and prairies. Western Texas to the Rio Grande and Chihuahua; also in New Mexico west to the Copper Mines, April. (No. 1915 and 1916, *Wright.*)

Allium mutabile, *Michx. Fl.* 1, *p.* 195; *Kunth, Enum.* 4, *p.* 451. Gravelly hills, western Texas; *Wright.* Presidio del Norte on the Rio Grande, and in other places on that river; *Bigelow.* Chihuahua; *Thurber.* The bulb is commonly single, ovate, and 1–1½ inch long. Leaves narrowly linear, shorter than the scape, which is about a foot long. Umbel 15–40-flowered. Spathe 2–3-valved. Perianth rose color, sometimes very pale; the segments ovate-lanceolate, acute. Stamens about two thirds the length of the perianth; filaments subulate, gradually and moderately dilated downward; anthers oblong. Cells of the ovary 2-ovulate. Capsule subglobose, 3-lobed; the cells rounded at the summit, usually perfecting but a single ovate black seed.

Allium acuminatum, *Hook. Fl. Bor.-Am.* 2, *p.* 185, *t.* 196. San Diego, near the boundary line; *Parry.* New Almaden, California; *Thurber.*

Allium (Hesperoscordium) maritimum, *Torr. Bot. Whippl. Rep. p.* 149; *Benth. Pl. Hartw. p.* 339. Sandy places near Monterey, California, March; *Parry.*

ALLIUM (NOTHOSCORDIUM) STRIATUM, *Jacq.; Bot. Mag. t.* 1035; *Ell. Sk.* 1, *p.* 385. Prairies of western Texas and along the Rio Grande; common; flowering from March to September. Janos, Coralitas river, Sonora; *Capt. E. K. Smith.*

Sub-genus CHRYSOSCORDIUM. Sepala basi vix connata, erecto-patentia, uninervia. Filamenta filiformia, basi utrinque unidentata. Ovarium sessile: ovula in loculis 4–5. Herba Californica scapigera, bulbosa? ; foliis linearibus; floribus umbellatis aurantiacis.

ALLIUM (CH.) CROCEUM (n. sp.) Summit of the mountains east of San Diego, California; *Parry.* Leaves all radical, about a foot long and 2½ lines wide, glabrous. Scape as long as the leaves, slender, terete, naked. Umbel 9–12-flowered; the pedicels 8–10 lines long, spreading, articulated close to the flower. Spathe of 4–5 lanceolate acuminate valves, which are nearly distinct to the base. Sepals 4–5 lines long, orange-yellow, oblong, rather obtuse, with a ciliolate callosity at the tip. Stamens one fourth shorter than the sepals; filaments filiform, with an oblong adnate tooth on each side at the base. Ovary oblong; style about as long as the sepals, filiform; stigma very small, 3-lobed. Capsule (immature) obovate; seeds compressed. This species resembles a small Calliproa lutea. It differs from most of the genuine species of Allium in its yellow flowers, more numerous ovules, and articulated pedicels.

CAMASSIA FRASERI, *Torr. in Bot. Whippl. Rep. p.* 147. Scilla esculenta, *Ker.* S. Fraseri, *Gray, Man. ed.* 2, *p.* 469. Prairies of western Texas; *Wright.*

BRODIÆA (DICHELOSTEMMA) CAPITATA, *Benth. Pl. Hartw. p.* 339. Dichelostemma congestum, *Torr. Bot. Whippl. Rep. non Kunth.* Near Monterey, California, *Parry;* and Napa valley, in the same State; *Thurber.* Until very recently, I had never seen the true B. congesta; all the numerous specimens of what I have taken for it having 6 perfect stamens. As an early figure of Hookeria pulchella, *Salisb.*, which several botanists have referred to B. congesta, represented the flowers as hexandrous, I supposed that the fertile stamens were commonly 6. I have, however, just examined a Brodiæa from Oregon, which exactly accords with Smith's description of B. congesta. Nevertheless it is possible that the usually abortive stamens are sometimes antheriferous.

Var.? PAUCIFLORA: umbella 2–4-flora; pedicellis valde inæqualibus partim spatha 3–4-valva subduplo longioribus. Near the Copper Mines, New Mexico; *Bigelow.* On the Gila river, March; *Parry.* San Francisco Spring, Sonora, *Capt. E. K. Smith.* This may prove a distinct species; for we have seen no intermediate forms.

BRODIÆA GRANDIFLORA, *Smith, l. c.; Kunth. Enum.* 4, *p.* 471; & var. MACROPODA, *Torr. Bot. Whippl. Rep. p.* 149. San Pasqual, California, May; *Thurber.*

CALLIPROA LUTEA, *Lindl. Bot. Reg. t.* 1590; *Kunth, Enum.* 4, *p.* 476. Dry grassy hill sides, near Monterey, California, May; *Parry.*

CHLOROGALUM POMERIDIANUM, *Kunth, Enum.* 4, *p.* 682. Anthericum pomeridianum, *Gawl. Bot. Reg. t.* 561. (TAB. LX.) Pinasquitos, California, May; *Thurber.*

ANDROSTEPHIUM, Nov. Gen.

Perianthium corollaceum, infundibuliforme, 6-fidum, regulare, persistens; laciniis tubo subæqualibus patulis uninerviis. Stamina 6, omnia fertilia; filamentis superne in tubum brevem cylindraceum connatis, inter et ultra antheras biloculares introrsas dorso medium affixas in coronam 6-foliolatum productis. Ovarium sessile, oblongum, 3-loculare; loculis 12–14-ovulatis:

stylus filiformis, stamina æquans; stigma capitato-trilobum. Capsula late-obovata, truncata, 3-loba, lobis compressis. Semina in loculis 8–14, verticalia, compresa, biseriata, nigra. Herba bulboso-tuberosa. Folia omnia radicalia, linearia, semi-cylindrica. Flores in apice scapi umbellati, pedicellati, violacei, bracteis 3–4 involucrati; pedicellis inarticulatis.

ANDROSTEPHIUM VIOLACEUM.—Hills and prairies on the rivers Blanco and Colorado, Texas, March; *Wright*. We have excellent specimens from Dr. R. Gleason, United States army, collected near Fort Arbuckle; and it occurs in Lindheimer's Texan collection fasc. IV. Leaves 6–8 inches long and 1–2 lines wide, arising from a small coated bulb which surmounts a depressed globose bulb or corm. Scape about as long as the leaves, rather stout, bearing at the summit an umbel of 2–7 flowers, which have a faint sweet odor. Bracts scarious, lanceolate, acuminate, 3-nerved. Pedicels rather shorter than the flower. Perianth nearly an inch long, 6-cleft nearly to the middle, the segments more or less spreading, oblong, obtuse. Stamens 6, the free portion of the filaments united into a tube which arises from the orifice of the perianth is conspicuously exserted, and produced between and beyond the anthers into a crown of 6 oblong emarginate lobes. Anthers linear-oblong, notched at each end. Style about as long as the stamens. Ovary entirely free from the base of the perianth. Capsule sessile, with 3 very prominent laterally compressed lobes or cells, which open loculicidally. Seed suborbicular, laterally much compressed and narrowly winged, vertically imbricated in a double series. Embryo slender, cylindrical, a little curved in the axis of fleshy albumen. The Mexican genus Bessera most resembles this, but it differs in the very short tube of the perianth, in the tube of filaments having only a short tooth between the filaments, and in the form of the capsule.

MILLA BIFLORA, *Cav. Ic.* 2, *p.* 76, *t.* 196, *ex Kunth, Enum.* 4, *p.* 478. M. cærulea, *Scheele in Linnæa*, 25, *p.* 260. On the Rio San Pedro, Sonora; *Schott, Thurber.* No. 1913, *Wright.* Scape 1–3-flowered. Bulb subglobose, clothed with light brown scales. Our plant wholly resembles Mexican specimens collected by Dr. Halsted and others.

ECHEANDIA TERNIFLORA, *Ortega; Kunth, Enum.* 4, *p.* 627. Var.? ANGUSTIFOLIA: foliis 2–4 lin. latis, pedicellis infra medium articulatis; ovarii loculis sub-16-ovulatis. Copper Mines, New Mexico; rocky places near the mouth of the Pecos, and near Rock Creek, July—August; *Bigelow;* (No. 69 and 1912, *Wright.*) Cretaceous hills and ravines near the Pecos; *Schott.* Monterey, Mexico; *Dr. Edwards.* New Mexico, *Fendler,* No. 851. Root a fascicle of thick fleshy fibres. Leaves usually less than 3 lines wide. Stem scapiform, 1½–3 feet long, very slender, often nearly simple above, but more commonly somewhat paniculately branched, the branches erect. Flowers 2–4 or more together in fascicles; the terminal ones racemose and mostly solitary. Pedicels jointed about one-third their length from the base. The expanded perianth about three-fourths of an inch in diameter, orange-yellow; segments narrowly oblong, with closely approximated nerves along the middle. Stamens scarcely half the length of the perianth; filaments roughened with short, obtuse, somewhat retorse teeth; anthers linear-oblong. Ovary obovate, the cells with about 16 anatropous ovules in a double series; style one-third longer than the stamens, filiform; stigma minutely 3-lobed, ciliolate-papillose. Capsule oblong-obovate, obtuse, 3-lobed, thin. Seeds angular, black. E. terniflora differs from our plant in the leaves being 6–7 lines wide, the pedicels jointed in the middle and the more numerous ovules (23–24 in each cell of the ovary.)

SCHŒNOLIRION, Nov. Gen.

Perianthium corollaceum, 6-phyllum, persistens; sepala 3–5-nervia, patentia. Stamina 6, imæ basi sepalorum inserta; filamenta subulata basi complanata; antheræ oblongæ, utrinque bifidæ, introrsae. Ovarium liberum, ovali-globosum, subsessile, 3-loculare; ovula in loculis 2, collateralia, horizontalia, anatropa; stylus filiformis, rectus; stigma minutum, 3-lobum. Capsula globoso-obovata, 3-loba; loculis 1–2-spermis. Semina subglobosa nigra nitida.—Herbæ perennes; rhizomate bulboso-tuberosa; foliis subradicalibus angusto-linearibus subcanaliculatis; scapo gracili; floribus albis in racemis simplicibus vel laxe paniculatis; pedicellis juxta florem articulatis basi bracteatis.

Schœnolirion Michauxii: pedicellis bracteis 2–4-plo longioribus; sepalis ovatis, nervis subdistantibus.—Phalangium croceum, *Michx. Fl.* 1, p. 196. Ornithogalum? croceum, *Ell. Sk.* 1, *p.* 397; *Kunth, Enum.* 4, *p.* 371. O. Texanum, *Scheele in Linnæa, p.* 146. Moist places on the Colorado of Texas, March—April; *Wright.* Also found on the Red River of Louisiana, by Dr. Hale, and in East Florida by *Mr. Buckley* and *Dr. Chapman.* Rhizoma oblong or sometimes elongated, about as thick as the little finger, crowned with a scaly bud or bulb. Leaves 1–1½ foot long, narrowly linear, glabrous, somewhat channelled above, and rounded underneath. Scape 1½–3 feet high, terete, slender, simple, or with a few branches above. Racemes 8–25-flowered, the pedicels 5–8-lines long, somewhat spreading, with short bracts at the base. Perianth, when expanded, 4–5 lines in diameter, spreading, white, the 3 exterior sepals greenish externally along the middle. Stamens a little shorter than the perianth; filaments white. Capsule coriaceous, somewhat truncate, with 3 rounded lobes; cells 1–2-seeded, one or two of them abortive. Seeds globose-obovate, black and shining. Embryo straight in the axis of fleshy albumen. The flowers of this species are yellowish when dry, a circumstance which doubtless gave rise to the specific name of Michaux, but which had best be superseded, as it may lead to error. S. album, *Durand*, differs in its pedicels being much shorter than the subulate bracts; in the oval sepals which are narrowed towards the base, and in the almost confluent nerves. The perianth is also of much more delicate texture than in S. Michauxii, and dries white. This genus was indicated in Durand's account of a collection of California plants made by Mr. H. Pratten and published in the Journal of the Academy of Philadelphia (n. ser. vol. 2.) It is much more nearly related to Ornithogalum than to Phalangium.

Smilacina stellata, *Desf. in Ann. Mus.* 9, *p.* 51. Near the Copper Mines, New Mexico; *Bigelow.* Moist places near Monterey, California, April; *Parry.* The raceme is looser, and the pedicels considerably longer than in the eastern plants.

Smilacina racemosa, *Desf. l. c.* Mountains on the Mimbres, April—May; *Bigelow, Thurber.* California; *Parry.* The branches of the panicle are shorter and fewer-flowered, both in the California specimens and in those of New Mexico, than in the plant of the Eastern States.

Polygonatum biflorum, *Ell. Sk.* 1, *p.* 393? Copper Mines, New Mexico, June; *Bigelow.* (No. 1917, *Wright.*) Whole plant quite smooth. Stem about a foot and a half high. Leaves narrowly oblong, glaucous underneath. Peduncles 2-flowered. Filaments very slightly rough, inserted below the middle of the tube of the perianth.

Yucca angustifolia, *Pursh, Fl.* 1, *p.* 227; *Nutt. Gen.* 1, *p.* 218. Sandy hills and plains, New Mexico, Western Texas and Chihuahua, May—August. (No. 910 and 911, *Wright*; No. 850 of Fendler's New Mexican collection.)

Yucca? parviflora (n. sp.): subacaulis; foliis anguste-linearibus canaliculatis rigidis recurvatis margine filamentosis; pedunculis scapiformibus subpaniculatis; bracteis e basi dilatatis promisse acuminatis; pedicellis fasciculatis; sepalis linearibus subconniventibus; stylus filiformibus, stigmate integro truncato. Gravelly hills near the mouth of the Pecos; *Bigelow*. Stony hills west of the Nueces, Texas; *Wright*, (No. 1908). Caudex apparently very short. Leaves 12–18 inches long, 4–5 lines wide, conduplicate when dry, very smooth, acute at the tip, but not pungent; the filaments on the margin 1–2 inches long and about as thick as common sewing-thread. Scape 3–4 feet long, with distant clasping bracts; the upper part racemose and somewhat branching. Pedicels 3–4 together, 6–10 lines long, arising from the axis of a clasping bract, erect, a little thickened upward and articulated close to the flower. Perianth white? the divisions about three-fourths of an inch long, scarcely 2 lines wide, rather obtuse, scarcely united at the base. Stamens 6, shorter than the perianth; anthers oblong; bifid at the base. Ovary oblong, 3-celled; the cells with numerous horizontal ovules; style a little exserted, filiform, triangular and a little enlarged toward the extremity. This differs from all the other species of the genus in its elongated filiform style and narrow sepals. The fruit of Mr. Wright's specimens in Dr. Gray's herbarium is unripe. It is subglobose, and about an inch in diameter. As Mr. Wright likens it to a fig, it is doubtless fleshy.

Yucca puberula, *Haw. in Phil. Mag. March* 1828, *ex Kunth. Enum.* 4, *p.* 272. Y. brevifolia, *A. Schott, MSS.* Valley of the Santa Cruz river, and Sierra del Pajarito, near the monument, Sonora, June; *Schott.* Stems 6–8 feet high. Leaves mostly in a terminal crown, about a foot long and 5–6 lines wide, concave above, a little rounded underneath, of a thick and firm texture, with a few loose threads on the margin, the apex armed with a spine. The persistent retrorsely imbricated vestiges of former leaves give the stem a very rough appearance. Scape 2–3 feet long, paniculate above, pubescent. Bracts at the base of the branches lanceolate, tapering to a long point. Flowers apparently white. Sepals broadly elliptical 1¼ inch long, rather acute. Fruit about 2½ inches long, and 1¼ in diameter, pointed with the base of the styles. "This is the *Sotol* of the Sonorians, but not of the Texans along the Rio Grande. It bears large fleshy fruits which are edible, and called *Datili*, probably on account of their shape."—*Schott.*

Yucca rupicola, *Scheele in Linnæa*, 23, *p.* 143. Y. tortifolia, *Lindh. MSS.* Gravelly hills and plains, western Texas, New Mexico, and Chihuahua, April–May. (No. 688, 689, and 1,909, *Wright.* No. 709, Fasc. IV, *Lindheimer.*) Fruit an inch and a half long, dry or nearly so, often remarkably constricted near the middle.

Yucca baccata (n. sp.): foliis lanceolatis planis crebris margine filamentiferis apice convolutis, spina terminali brevi; floribus campanulatis; fructibus racemosis cernuis ovatis baccatis. Parras, Cohahuila; *Thurber.* High table lands between the Rio Grande and the Gila; *Major Emory.* This is the same species that is noticed in the Botany of Whipple's Report as having been found at Hurrah Creek, New Mexico, by Dr. Bigelow. According to Dr. Bigelow it is a low species, with a subterranean caudex. We have no information as to the length of the scape. The flowers appear to form a racemose panicle. They are larger than in any other species of Yucca here noticed; the sepals being 2½–3 inches long, tapering to each end and 6–7 lines wide in the middle. The fruit is the size of a large fig, with a sweet edible pulp. Near Monterey, California, Dr. Parry collected the leaves of a yucca resembling those of this species, except in being smaller. On the plains of western Texas, near the Limpio, and in the vicinity of Presidio del Norte, Dr. Bigelow found a yucca 10–15 feet high, with leaves almost exactly like those of

Y. baccata, but the fruit is longer, though not greater in diameter, and the pulp is thicker. It may, till better known, be regarded as a variety (*macrocarpa*) of that species. We have from Mr. Thurber the leaves and a portion of the fruit of a yucca which he collected near Parras, in Cohahuila, where it covers the table lands. It is a tree sometimes twenty-five feet or more in height, with several spreading branches. The leaves are about 15 inches long, and from an inch to an inch and a half wide, flat, terminating in a spiny point, and the margin filamentous. The fruit is two or three inches long, and has a thin sweet pulp. The seeds are thick and black. A figure of the plant is given in Bartlett's narrative, vol. 2, p. 491. Our specimens are hardly sufficient for determining whether it is a described species. It may not be distinct from the yucca found by Dr. Bigelow. Mr. Schott, in his notes, states that on the upper Rio Grande he saw a yucca, bearing edible fruits, with a stem 18 inches in diameter. The trunks have been used in Mexico as palisades in the construction of stockades. Besides the above species, there are two or three others in the collections, which I have not been able to determine satisfactorily for want of sufficient materials. One is a yucca found by Mr. Schott on rocks near San Pasqual, southern California. It is the same that is doubtfully referred to Y. aloifolia in the Botany of Whipple's Report, (excluding the synon. and No. 1909, *Wright.*) The caudex is 1–2 feet high, and the scape 2–3 feet. The leaves are 18 inches or more in length, channelled on the upper side, rounded or obtusely angular underneath, and slightly serrulate-scabrous on the margin; the apex convolute and spiniferous. The flowers (as represented in a sketch) are in a spreading panicle. Capsule coriaceous, obovate, and somewhat truncate, 3-lobed, an inch and a quarter long and of nearly the same breadth. Seeds semiorbicular, thin and flat. If it prove to be a distinct species it may be called Y. Whipplei. The late Dr. Gregg found between Parras and Cerralbo a yucca between 20 and 30 feet in height; but his specimens are too imperfect for comparison.

MELANTHACEÆ.

Anticlea Fremonti, *Torr. in Bot. Whippl. Report, p.* 144. Fields around San Diego, California; *Parry.*

Xerophyllum tenax, *Nutt. Gen.* 1, *p.* 235, *Gray, Melanth. in Ann. Lyc. N. York,* 4, *p.* 129. Helonias tenax, *Pursh, Fl.* 1, *p.* 243, *p.* 9. Dry hills near the seacoast, Monterey, California, May; *Parry.*

Schœnocaulon Drummondii, *Gray, in Bot Beech. p.* 388, *adn.* S. Texanum, *Scheele in Linnæa,* 25, *p.* 262. Near Yorktown, on the Lower Rio Grande, Texas, April—October; *Schott.* This species was first discovered by Drummond, and is No. 284 of his third Texan collection. It was afterwards found by Dr. Riddell and Mr. Lindheimer. The filaments are dilated *upward* and not downward, as stated by Scheele l. c.

JUNCACEÆ.

Juncus Balticus, *Willd. in Berl. Mag.* 1809, *p.* 298, *ex Kunth, Enum.* 3, *p.* 316. Sandy moist places, western Texas, New Mexico, Sonora and California, June; (No. 1920 and 1921, *Wright.*)

Juncus debilis, *Gray, Manual, ed* 2, *p.* 480. J. polycephalus, var.? depauperatus, *Torr. Fl. N. York.* 2, *p.* 328. Wet places along the Limpio, July; *Bigelow.* Arroyo de los Janos, Sonora; *Schott.* (No. 1925, *Wright.*)

Juncus xiphioides, *C. A. Mey. in Reliq. Haenk.* 2, *p.* 143, *ex Kunth, Enum.* 3, *p.* 331. Near Monterey, California, May; *Parry.* Very near J. Menziesii β. Californicus, *Hook. & Arn. Bot. Beech, p.* 402.

Juncus articulatus, *Linn.*; *Gray, l. c.* J. lamprocarpus, *Ehrh.* Near the Copper Mines, New Mexico, June; *Bigelow.* Var. crassifolius: foliis crassis compressis vix articulatis. Sonora; *Schott.* Var. multiflorus: capitulis paucis 20–30-floris. Fronteras, Sonora; *Thurber.*

Juncus nodosus, *Linn.*; *Gray, l. c.* Laredo, on the Lower Rio Grande, June; *Schott.* Var. megacephalus, *Torr. Fl. N. York*, 2, *p.* 327. San Elceario on the middle Rio Grande; *Bigelow.* Along the Gila, Sonora; *Thurber, Schott.*

Juncus tenuis, *Willd. sp.* 2, *p.* 214; *Torr. Fl. N. York*, 2, *p.* 327. Hills at the Copper Mines, New Mexico; *Thurber.*

Juncus marginatus, *Rostk. Junc. p.* 38, *t.* 2, *f.* 3. Western Texas; *Wright.* (No. 1923 in part.

Juncus longistylis (n. sp.): culmo erecto simplici compresso foliato; foliis planis gramineis; capitulis paucis 4–6-floris in panicula sub-simplici dispositis; sepalis lanceolatis mucronatis capsula obovato-oblongo obtusa mucronata paullo longioribus; seminibus oblongis utrinque acutis ecaudatis. Near the Copper Mines, New Mexico, June; *Bigelow.* (No. 1924, *Wright.*) Culms from a rather stout root-stock, 12–18 inches high, slender, distinctly compressed. Leaves flaccid, 1–1½ line wide, obscurely nerved; the radical ones 6–8 inches long, those of the culm (2–3 in number) shorter. Heads 4–8 in a contracted or oblong panicle, the bracts at the base ovate, scarious, about as long as the sepals. Stamens 6. Style more than half as long as the ovary. Capsule usually about one-fifth shorter than the sepals. A very distinct species. J. marginatus, to which it is nearest related, differs in the usually much more numerous heads, triandrous flowers, short style, obtuse inner sepals and subglobose capsule. No. 857 of Fendler's New Mexican collection seems to be a variety of this species, with only two or three closely approximated heads.

Juncus bufonius, *Linn. Sp. p.* 466; *Kunth, Enum.* 3, *p.* 353. Moist places, Sonora and California; *Thurber.*

Luzula campestris, *DC.*; *Torr. Bot. Whippl. Rep. p.* 143. Pine woods near Monterey, California, May; *Parry.*

PONTEDERIACEÆ.

Heteranthera limosa, *Vahl, Enum.* 2, *p.* 44; *Pursh, Fl.* 1, *p.* 32; *Kunth, Enum.* 4, *p.* 122. Wet places along the Limpio, and at the Copper Mines; also in Sonora; flowering through the summer and autumn. (No. 1927, *Wright.*)

Schollera graminifolia, *Willd.* Heteranthera graminea, *Vahl, l. c.*; *Torr. Fl. N. York*, 2, *p.* 313, *t.* 133. Near Matamoras, in Tamaulipas, on the lower Rio Grande, May; *Schott.* The specimens appear to have grown in very shallow water, or on muddy ground. The stems are scarcely an inch long, and the leaves are only about twice that length.

HYDROCHARIDACEÆ.

Limnobium Spongia, *Rich. in Mem. Instit.* 2, *p.* 66, *t.* 8. Hydrocharis spongiosa, *Bosc.* Near San Antonio, Texas; *Schott.*

COMMELYNACEÆ.

Commelyna Virginica, *Linn. Sp. p.* 61; *Gray, Man. ed.* 2, *p.* 486. C. angustifolia *Michx. Fl.* 1, *p.* 24. Moist thickets and borders of rivers. Western Texas, New Mexico, and Chihuahua; flowering throughout the season.

β.? LATIFOLIA: foliis ovatis tenuibus basi obtusis summis cordatis glabris, vaginis ore ciliatis; spatha subtriflora brevi rostrata basi subturbinata.—Shady alluvions of the lower Rio Grande, September; *Schott*. Stem branching, (only the upper part seen,) glabrous. Leaves very thin, 2–3 inches long, 1–1½ inch wide, acute. Flowers only 2 and sometimes a rudiment in one spatha. Sepals and petals nearly as in C. Virginica, but the latter, Mr. Schott says, are white. We need more specimens, in order to determine whether the plant is a distinct species.

COMMELYNA LINEARIS, (*Benth. Pl. Hartw. p.* 27, var. LONGISPATHA:) caule erecto-subramoso; foliis lanceolato-linearibus complicatis, margine scabro; spatha terminali complicata longissime rostrato-attenuata; pedunculis geminis, incluso 8–10-floro, exserto 1–2-floro; petalo impari sessili lateralibus paullo breviore.—Near the Copper Mines, New Mexico, August; *Bigelow*. (No. 700, (in part) 1923 and 1930, *Wright*. No. 864, *Fendler*.) Stem 1–2 feet high, with short axillary branches. Leaves 4–6 inches long, and about a quarter of an inch wide, tapering at each end, slightly pubescent; the sheaths a little swollen, fringed at the orifice. Spatha pedunculate, cordate, not at all turbinate at the base; the narrow tapering somewhat recurved point 1–2 inches long; peduncles of the spatha hispidly pubescent, the terminal one much exserted. Exserted flowering peduncle about an inch long. Exterior sepal ovate, acute, carinate; the two lateral sepals united above the middle, obtuse. Petals bright blue, the lateral ones unguiculate, the odd one about one-third smaller and sessile. Stamens 6; filaments all glabrous; 3 of the anthers abortive and cruciform; the others fertile, oblong, one of them larger and curved. Style long and slender, a little incurved toward the summit. Capsule oblong, one of the cells usually abortive, the other cells 2-seeded. Seeds oblong or roundish, corrugated. A well characterized species, remarkable for the long attenuated apex of the spatha. I first received it from Lieutenant Abert, of the United States army, who collected it on the Pecos river.

TRADESCANTIA VIRGINICA, *Linn. Sp. p.* 412; *Kunth, Enum.* 4, *p.* 81. Valley of the Limpio, July; *Bigelow*. A glabrous narrow-leaved form. No. 1928 and 1929, *Wright*, are other varieties of this polymorphous species.

TRADESCANTIA MICRANTHA (n. sp.): caule subramoso repente linea alterne pubescente; foliis ovatis subamplexicaulibus acutis glabris margine serrulatis, vaginis brevibus ore ciliatis; umbella pauciflora sessili; sepalis obtusiusculis ad carinam hispidulis.—Lower Rio Grande, towards the mouth, October; *Schott*. Stems flaccid, smooth, except the narrow alternate line of pubescence. Leaves about three-fourths of an inch long, and one-third of an inch wide, the two uppermost connate. Umbels only terminal in our specimens. Pedicels 3–8 lines long, nearly smooth. Flowers scarcely one-third of an inch in diameter. Sepals ovate-oblong, equal. Petals pale blue, one-third longer than the sepals, obovate-orbicular. Stamens 6; filaments all bearded; anthers all similar and fertile; the cells separated by a broad connective. Ovary obovate; style long and slender; stigma peltate-capitate. This species has the aspect of Callisia repens.

TRADESCANTIA BIANDRA (n. sp.): caule subramoso erecto glabro, superne nudo; foliis remotis lanceolatis glabris margine ciliolato-scabris, floralibus brevibus acuminatis, vaginis ore nudis; umbella sessili multiflora; pedicellis villosissimis; filamentis imberbibus.—Mountains and moist, rocky places, Puerto de Paysano, September; *Bigelow*. (No. 700, *Wright*.) Stems 12–18 inches high, moderately branched above. Leaves 3–5 inches long, and 6–8 lines wide,

acute, scarcely narrowed at the base; the sheaths wide and short. Floral leaves connate and spreading horizontally, ovate, acuminate, cordate at the base. Umbel 20-40-flowered; the pedicel densely clothed with long white hairs. Sepals oblong, rather obtuse, smooth. Petals roundish-obovate, a little narrowed at the base, deep rose-color. Filaments all smooth, two-thirds the length of the petals; anther-cells separated by a wide connective. Style filiform; stigma capitate-peltate. Cells of the capsule 2-seeded.

Var. BREVIFOLIA: caule prostrato; foliis ovatis approximatis crassiusculis glaucis, vaginis ore ciliatis.—Mountains near the mouth of the Pecos; *Bigelow*. The general appearance of this plant is certainly very unlike that of T. leiandra, but the pedicels and flowers are so similar that I hesitate to separate it as a distinct species.

TRADESCANTIA ANOMALA (n. sp.): caulibus pluribus erectis; foliis inferioribus angusto-lanceolatis basi attenuatis ciliatisque, superioribus ovato-lanceolatis subamplexicaulibus, supremo (spatha?) cordato; racemo terminali paucifloro brevipedunculato; pedicellis brevibus glabris; sepalis ovato-oblongis acutiusculis carinatis; petalis valde inequalibus, lateralibus orbiculari-obovatis, impari rhomboideo parvula; staminibus 6; antheris difformibus; filamentis 3 superne, 2 basi barbatis, una imberbe. Shady woods on the Blanco, Comale, and other rivers, Texas; *Wright*, (No. 699.) San Antonio, Texas; *Thurber*. I have long had Texan specimens from Mr. Wright, from near Austin, &c. The species is intermediate between Tradescantia and Commelyna; resembling the latter in the unequal petals and difformed stamens as well as in the terminal leaf or bract (which is like a spatha laid open); and the former in the 6 fertile stamens with bearded filaments. The plant seems to be an annual, and is a foot or 15 inches high. Lower leaves 4–6 inches long, and half an inch wide in the middle, the tapering base fringed with a few long hairs, otherwise smooth; upper leaves much shorter and rounded at the base. Peduncle 4–6 lines long. Raceme about 5-flowered; pedicels short, with ovate bracteoles at the base. Sepals glabrous, green. The 2 lateral petals bright blue, nearly twice as long as the sepals, odd one rhombic, white, less than one fourth as large as the others. The 3 stamens that are opposite the petals shorter than the others and furnished with oblong anthers; filament of the one opposite the small odd petal beardless, of the 2 lateral ones bearded with purple hairs near the base. The other three stamens have smaller roundish similar anthers; the filament of the middle one winged on each side, from the summit to nearly the base, with a membrane which is fringed with yellow hairs; the other two filaments are bearded only near the summit. Ovary ovate, 2-celled, (one of the cells abortive,) with 2 superimposed ovules in each cell; style long, slender, and somewhat curved above; stigma capitate. Capsule oblong, cells 2-seeded. Seeds as in the rest of the genus.

TRADESCANTIA RHODANTHA (n. sp.): caule erecto simplici glabro; foliis linearibus complicato-falcatis utrinque glabris margine scabriusculis, vaginis ore imberbibus; umbellis terminalibus longe-pedunculatis solitariis compositis 3–4-radiatis; umbellulis 3–4-floris; pedicellis sepala exterioreque (antica?) vix hispidulis; filamentis omnibus barbatis; antheris conformibus. Corallitas, Chihuahua, August; *Thurber*. Root fasciculate. Stem 12–15 inches high, slender. Leaves about 3, the sides folded together. Peduncle 4–6 inches long. In the axil of the upper leaf there is second small umbel. Primary rays of the umbel 1–1½ inch long; pedicels of the buds short and nodding; of the flowers 6–10 lines long. Sepals ovate-oblong, rather obtuse. Petals bright rose-color, orbicular-ovate, about 4 lines long. Stamens half the length of the

petals; filaments bearded with white hairs; cells of the anthers reniform, separated by a broad connective. Style filiform; stigma peltate-capitate. This species resembles T. rosea, but differs in the smooth sheaths, compound umbel, etc. No. 701 of Mr. Wright's Texan collection (1849) seems to be a dwarf state of T. rosea, but our specimens are too imperfect for satisfactory comparison.

CYPERACEAE.

CYPERUS DIANDRUS, *Torr. Cat. Pl. N. York, p.* 90, *& Cyp. p.* 251. Western Texas; *Wright*, (No. 1749.)

CYPERUS FLAVICOMUS, *Michx. Fl.* 1, *p.* 27; *Torr. l. c. p.* 253. Sonora, Mexico; *Thurber.* (No. 1965, *Wright.*) Our specimens are smaller than the usual form of this species, and the umbel is 2–4-rayed; but in other respects there is no essential difference.

CYPERUS MICRODONTUS, *Torr. p.* 255. C. Gatesii, *Torr. l. c.* Western Texas; *Wright.* A comparison of specimens from numerous localities shows the necessity of uniting these two species.

CYPERUS ARTICULATUS, *Linn.; Torr. l. c. p.* 256. Western Texas; *Wright.*

CYPERUS LATERIFLORUS (n. sp.): umbella capitato-contracta quasi laterali; involucro diphyllo, foliolis valde inequalibus, uno longissimo erecto culmum desinente; spiculis confertis linearibus 12–20-floris; squamis parum remotis suborbiculari-ovatis obtusissimis (ferrugineis) obscure trinerviis; floribus diandris; achenio obovato triquetro pallido scabriusculo nitidulo squama subæquali; stylo trifido. Along mountain torrents, east of Santa Cruz, Sonora; *Wright*, (No. 1950.) Annual. Culms cæspitose, about three inches high, triangular, slightly rough on the angles. Leaves shorter than the culm, rough on the margin. Involucre of 2 very unequal leaves; one of the leaves nearly as long as the culm, of which it appears to be a continuation, the other scarcely one fourth as long. Umbel somewhat capitate and apparently lateral, sometimes with a single short ray. Spikelets 2–3 lines long. Scales light brown on the sides with a pale narrow margin and keel. Rachis very narrow and zigzag, slightly margined. Allied to C. fuscus of Europe.

CYPERUS MICHAUXIANUS, *Schultes, Mant.* 2, *p.* 123; *Torr. Cyp. p.* 259. Wet places, western Texas and New Mexico, westward to the Colorado. No. 1946, Wright, is a dwarf variety. C. speciosus, *Vahl*, or at least of *Torr. Cyp.*, of which we have Californian specimens collected by Rev. A. Fitch, is, perhaps, only a luxuriant form of this species, in which the partial umbels are furnished with conspicuous involucels.

CYPERUS TETRAGONUS, *Ell. Sk.* 1, *p.* 71; *Torr. Cyp. p.* 261. Santa Cruz, Sonora; *Thurber.* Since this plant was noticed in the Monograph of North American Cyperaceæ, I have seen the original specimens of Elliott, and have also received it from east Florida, Louisiana, and Texas. The umbel consists of 4–10 somewhat spreading rays, each bearing a narrowly oblong spike an inch or more in length. The spikes are either simple or they produce 1–3 smaller ones at the base. Spikelets very numerous, obtuse and somewhat quadrangular, crowded on the rachis and spreading horizontally, (or the lower ones reflexed,) about 2 lines long, usually perfecting 2 or 3 achenia. Scales oblong, rather obtuse, light brown on the sides, with a narrow stripe along the obtuse keel. Stamens 3. Style deeply 3-cleft. Achenium oblong, triangular, dull,

embraced by the broad membranaceous margins of the rachilla, which at length separate and appear like 2 inner scales, in which character it accords with the subgenus Papyrus. This species is allied to C. ligularis, *Linn.*

CYPERUS DISSITIFLORUS, *Torr. Cyp. p.* 266. Western Texas; *Wright.* Resembles the last, but is a much smaller plant, with short rays and spikes; the spikelets acute, with narrower scales, etc.

CYPERUS REPENS, *Ell. Sk.* 1, *p.* 69; *Tor. Cyp. p.* 264. C. phymatodes, *Muhl. Gram. p.* 23. Hills near the Copper Mines, New Mexico, and dry ravines on the Limpia, western Texas; *Bigelow.* Sandy river-banks, San Luis Rey, California; *Parry.* (No. 1948, *Wright.*)

CYPERUS SETIGERUS, *Torr. & Hook. in Torr. Cyp. p.* 434. Ravines near Eagle Pass, on the Rio Grande; *Bigelow.* Western Texas; *Wright.*

CYPERUS LUTESCENS, *Torr. & Hook. l. c.* Western Texas; *Wright,* (No. 705.) Perhaps too near the last species.

CYPERUS BALDWINII, *Torr. Cyp. p.* 70. Dry plains between the Pecos and Devil's river; *Bigelow.*

CYPERUS TRACHYNOTUS (n. sp.): culmo valido foliisque glabro obtuse trigono; umbella simplici 3–6-radiata, radiis valde inequalibus; involucro 3–4-phyllo longissimo; spicis subglobosis polystachyis laxiusculis, spiculis lanceolatis compressis 10–14-floris; squamis parum remotis ovatis acuminatis apice subrecurvatis mucronatis, carina superne denticulato-spinulosa; stamina 3; acheniis triquetris basi attenuatis (nigris) squama duplo longioribus. Ravines near the mouth of the Pecos and on Devil's river; *Bigelow, Schott.* (Nos. 704 and 1943, *Wright.*) I have this plant from Key West. It is a well marked species, and does not appear to have been hitherto described.

CYPERUS FILICULMIS, *Vahl, Enum.* 2, *p.* 328; *Torr. Cyp. p.* 267. Western Texas; *Wright.*

CYPERUS OVULARIS, *Torr. Cyp. p.* 278. Mariscus ovularis, *Vahl, Enum.* 2, *p.* 374. Western Texas; *Wright.*

CYPERUS HASPAN, *Linn. Sp. p.* 66; *Kunth, Enum.* 2, *p.* 34. C. gracilis, *Muhl. Gram. p.* 18. C. leptos, *Schultes, Mant.* 2, *p.* 105; *Torr. Cyp. p.* 273. Western Texas; *Wright.*

CYPERUS DRUMMONDII, *Torr. & Hook. in Torr. Cyp. p.* 437. Leone, western Texas; *Bigelow, Wright.* Differs from Drummond's plant, in the somewhat compound umbel, longer rays and larger spikelets with the scales less closely set. We have specimens also from Louisiana and Florida, in which the umbels are compound, but the spikelets are smaller, like those of the original plant.

CYPERUS VIRENS, *Michx. Fl.* 1, *p.* 28; *Torr. Cyp. p.* 275. Moist ravines, western Texas and New Mexico, near the Rio Grande; *Bigelow.*

CYPERUS ARISTATUS, *Rottb; Kunth, Enum.* 2, *p.* 23. C. inflexus, *Muhl. Gram. p.* 16; *Torr. Cyp. p.* 274. Western Texas to California. (Nos. 1951 and 1955, *Wright.*) A widely-spread species, including perhaps most of the Cyperi belonging to the section *Aristati* of Kunth, so far as we can judge from the characters.

CYPERUS SCHWEINITZII, *Torr. Cyp. p.* 276. C. Houghtonii, *Torr. l. c.* Hills near the Copper Mines of New Mexico, and wet places, Rock Creek; *Bigelow.* (Nos. 703, 1944, and 1945, *Wright.*) Our numerous specimens show a gradual transition from C. Houghtonii to C. Schweinitzii.

FUIRENA SQUARROSA, *Michx.* Var. ARISTULATA, *Torr. Cyp. p.* 291. Wet places, Leon Springs, Rio Coleto and other places in western Texas.

Eleocharis equisetoides, *Torr. Cyp. p.* 296. E. Elliotti, *Dietr. Spec.* 2, *p.* 82, *ex Kunth.* Scirpus equisetoides, *Ell. Sk.* 1, *p.* 79. In water, borders of the San Felipe. Near the Rio Grande, October; *Bigelow.* The nodes of the culm, especially on the upper part, are much more closely approximated than usual.

Eleocharis cellulosa, *Torr. Cyp. p.* 298. Boggy banks of the Royo Zaquete, September; *Schott.* Rio Colezo, Texas; *Thurber.* Rutenville in the same State; *Wright.* We have specimens also from Key West, collected by Mr. Blodgett.

Eleocharis palustris, *R. Brown, Prodr. p.* 224: *Torr. Cyp. p.* 299. Alluvial soils, in overflowed places, from the Rio Grande to California. A variety with spikes nearly an inch long, and with only rudimentary bristles at the base of the nutlets, was found by Dr. Bigelow near San Elceario, on the Rio Grande. (Nos. 710, 712, 1934, 1957, and 1960, *Wright.*)

Eleocharis obtusa, *Schultes, Mant.* 2, *p.* 89; *Torr. Cyp. p.* 303. Western Texas; *Wright.*

Eleocharis capitata, *R. Brown, Prodr. p.* 225; *Torr. Cyp. p.* 305. On the Rio Coleto, Texas; *Thurber.* (Nos. 1932 and 1933, *Wright.*)

Eleocharis rostellata, *Torr. Fl. N. York,* 2, *p.* 347. Scirpus rostellatus, *Torr. Cyp. p.* 318. Pedro, Pinta, etc. Santa Rita del Cobra, New Mexico; *Bigelow.* San Bernardino, Sonora; *Thurber.* (Nos. 1931, 1934, and 1956, *Wright.*)

Eleocharis tenuis, *Schultes, var. β. Torr. Cyp. p.* 310. Western Texas; *Wright,* (No. 713.) In old spikes the scales are deeply bifid, and the divisions acute. The nutlets are pyriform, of a brownish yellow color, very obscurely triangular, with three slightly elevated lines at the angles. The bristles are only rudimentary.

Eleocharis arenicola, *Torr. in Engelm. & Gray, Pl. Lindh. p.* 30. Western Texas; *Wright,* (No. 1958 and 1959.) The plant is much taller (12–15 inches) than the original specimens, and the bristles are barely as long as the nutlets; but in other respects there is no difference.

Eleocharis acicularis, *R. Brown, Prodr.* 1, *p.* 224; *Torr. Cyp. p.* 308. Western Texas to California. Wright's No. 1937 is a small form, growing on wet ground.

Scirpus Olneyi, *Gray, in Engelm. & Gray, Pl. Lindh. p.* 30, (*adn.*) *& Man. ed.* 2, *p.* 499. Copper Mines, New Mexico, *Bigelow.* San Bernardino, Sonora; *Thurber.* (No. 1964, *Wright.*) The style is sometimes 3, and even 4-cleft.

Scirpus pungens, *Vahl, Enum.* 2, *p.* 255; *Gray, Man. l. c.* Frontera, Texas; *Parry.* (No. 1941 and 1963, *Wright.*) The spikes are oblong or sometimes almost cylindrical, and the style is more frequently 3- than 2-cleft.

Scirpus lacustris, *Linn.; Torr. Cyp. p.* 321. S. validus, *Vahl, Enum.* 2, *p.* 268. S. acutus, *Muhl. Gram. p.* 33. On the Rio Grande and its tributaries, from El Paso to San José, and westward to California. On the valley of the Sacramento, Dr. Hulse, there are thousands of acres covered with this plant, and of the height of 9 or 10 feet. It is called *Tulé* or Giant rush. It varies much in the size of the panicle. The perigynous bristles are mostly narrow and retrorsely hispid, but sometimes broad and retrorsely or horizontally plumose. These characters are not constant, there being intermediate forms. Bentham refers No. 2021 of Hartweg's Californian collection to S. riparius, *Presl,* which Kunth regards as identical with Elytrospermum Californicum, *C. A. Mey.;* which again is the same as the earlier Malacochete of Nees. In our specimen of Hartweg's plant there are four plumose bristles, while Meyer states that there are but two in his Elytrospermum. The number of these organs is, however, by no means constant in this genus, and in every other respect Elytrospermum resembles the form of Sc. lacustris with

broad plumose setæ. Scirpus lacustris of the old world is said to differ from ours in having a 3-cleft style, but in our authentic European specimens the style is 2-cleft.

SCIRPUS MARITIMUS, *Linn.; Torr. Cyp. p.* 323. On the Rio Grande, and westward along the Gila to the Colorado. (No. 1942 and 1962, *Wright.*) The long creeping rhizoma produces one or more ovate farinaceous tubers about an inch in length. They are white inside, and covered with dark brown scales which terminate in long filaments.

FIMBRISTYLIS SPADICEA, *Vahl, Enum.* 2, *p.* 294; *Torr. Cyp. p.* 346. F. cylindrica, *Vahl, l. c.* León Springs, western Texas; *Bigelow.*

ISOLEPIS CAPILLARIS, *Roem. & Schultes, Syst.* 2, *p.* 118; *Torr. Cyp. p.* 350. Fimbristylis capillaris, *Gray, Man. ed.* 2, *p.* 503. Oak woods on the Colorado, Texas; *Wright,* (No. 1936 in part.) Var. culmo 1–2-stachyo. Base of the Limpio mountains, and near the Copper Mines of New Mexico; *Bigelow.* (No. 1936, in part, *Wright.*) Culms 3–6 inches high, often bearing only a single spike, and very rarely more than two; the primary one solitary and the other on a ray 2–3 lines long. Involucre of two very unequal leaves, one of which is longer than the ray, the other mostly shorter than the sessile spike. Scales and nutlets as in the ordinary form of the plant.

DICHROMENA LEUCOCEPHALA, *Michx. Fl.* 1, *p.* 37; *Torr. Cyp. p.* 357. Near the Guadalupe river, above Victoria, Texas; *Schott.* (No. 716, *Wright.*)

HEMICARPHA SUBSQUARROSA, *Nees, Cyp. in Endl. & Mart. Fl. Bras. p.* 61, *t.* 4, *f.* 1; *Torr. Fl. New York,* 2, *p.* 362. Scirpus subsquarrosus, *Muhl. Gram. p.* 39. Isolepis subsquarrosa, *Schrad.; Torr. Cyp. p.* 51. Hills near the Copper Mines of New Mexico. (No. 715 and 1936, *Wright.*)

CLADIUM EFFUSUM, *Torr. Cyp. p.* 374. Schœnus effusus, *Swartz; Muhl. Gram. p.* 13. Wet places in elevated valleys on the Limpio; *Bigelow.* Western Texas; *Wright.*

GENUS CAREX.

BY PROFESSOR C. DEWEY.

CAREX HOODII, *Boott, in Hook. Fl. Bor.-Amer.* 2, *p.* 211, *t.* 211. Copper Mines, New Mexico; *Bigelow.*

CAREX DOUGLASII, *Boott, l. c. t.* 214. Copper Mines and other parts, New Mexico; *Bigelow.*

CAREX MARCIDA, *Boott, l. c. t.* 213. River banks near San Luis Rey, California, March; *Parry.* San Bernardino, Sonora, and along the Gila, June; *Thurber.* Camp Tezotat, Sonora; *Thurber, Schott.*

CAREX SICCATA, *Dewey in Sill. Journ.* 29, *p.* 278, *t. F. f.* 18, *&* 14, *p.* 353. C. pallida, *Meyer.* Chihuahua; *Parry.*

CAREX FESTIVA, *Dewey in Sill. Jour.* 29, *p.* 351, *t. W. f.* 71. Monterey, California, April; *Parry.*

CAREX CEPHALOPHORA, *Willd. Sp.* 4, *p.* 220. In woods, western Texas; *Wright.*

CAREX HOOKERIANA, *Dewey in Sill. Jour.* 29, *p.* 248, *t. X. f.* 75. Copper Mines and Rio Mimbres, New Mexico; *Bigelow.* The specimens are numerous, large and small forms, and are well characterized.

CAREX LIDDONI, *Boott, in Hook. Fl. Bor.-Amer.* 2, *p.* 214, *t.* 215. Copper Mines, May; *Thurber.*

CAREX MONTICOLA (Dewey): spicis distinctis erectis breviusculis oblongis; staminifera terminali

solitaria inferne tereti brevi-bracteata cum squamis oblongis obtusiusculis dorso excepto castaneis; pistiliferis 2-sublaxifloris, superiore sessili illi contigua, infima interdum sub-remota vaginata exserte pedunculata; perigyniis 2- vel raro 3-stigmaticis lato-ovatis oblongis convexo-concavis acutiusculis vix rostratis ore integris vel subbifidis subvillosis nervosis, squama lato-ovata acuta vel inferiore mucronata paulo longioribus; foliis vaginatis culmum superantibus.—Mountains east of San Diego, California, *Parry*. Culm 8-10 inches high, scabrous above, leafy; leaves flat, rough on the edges, sheathed to the base and longer than the culm; the lower scales of the perigynium sometimes mucronate and equal to it; the achenium ovate or obovate and convex above. In species where the stigmas are commonly two but sometimes three, the achenium has the lenticular shape belonging to two stigmas, probably the other stigma being abortive.

CAREX RECTA, *Boott; Hook. Fl. Bor.-Amer.* 2, *p.* 220, *t.* 222, *no.* 95. Rio Mimbres, New Mexico, May; *Thurber*.

CAREX STRICTIOR, *Dew.* C. stricta, var. strictior, *Carey in Gray's Man.* Rio Mimbres, New Mexico, May; *Thurber*.

CAREX STRICTA, *Lam.* Rio Mimbres, New Mexico, June; *Bigelow*.

CAREX EMORYI (*Dewey*): spicis staminiferis terminalibus ternis oblongis cylindraceis erectis, superiore longiore brevi-pedunculata, inferioribus sessilibus brevioribus illi contiguis brevi-bracteatis, densifloris, omnibus cum squamis oblongis obovatis obtusis castaneis; spicis pistilliferis 4 longo-cylindraceis densifloris sessilibus longo-foliaceo bracteatis, superioribus apice staminiferis, infima omnino fertili et subremota; perigyniis distigmaticis ellipticis basi teretibus apiculatis vel brevi-rostratis ore integris squama ovata oblonga subacuta duplo longioribus; culmo superne scabro; bracteis evaginatis margine scabris; planta pallido-viridi vel glauca.—The staminate spikes are rather short and contiguous, the upper longest and sub-clubform; pistillate spike 4, rather long, 1½–2 inches, cylindric, erect, sessile, staminate at the apex and bracteate, the lowest wholly fertile and slightly sheathed and nearly sessile; perigynium narrow-elliptic, tapering below, flattish, obovate and apiculate or short and round, rostrate, at the orifice entire, stigmas two; pistillate scale ovate, oblong, acutish, half as long as the fruit; culm triquetrous, scabrous above; bracts scabrous on the margin, long and leafy and surpassing the culm, whole plant pale green or glaucous. On the upper Rio Grande; *Bigelow*.

CAREX DECIDUA (*Boott. in Linn. Trans.* 20, *p.* 119): spicis 3–6 erectis cylindraceis gracilibus atro-purpureis, suprema staminifera brevi-pedunculata clavæformi omnino stamina habente vel sæpe basi aut interdum medio pistillifera, cum squamis oblongis obovatis obtusis dorso albi-nervosis; pistilliferis 1–5, interdum 1–3, sessilibus bracteatis, superioribus 1–3 brevibus parvis contiguis apice staminiferis, inferioribus 2–3 longioribus subremotis foliaceo-bracteatis; perigyniis distigmaticis oblongo-ovatis vel partim obovatis rostellatis inferne teretibus nervatis ore integris, squama oblonga obtusa dorso pallida subduplo longioribus. Banks of rivers, Santa Barbara, California; *Parry*.—Culm 1–1½ foot high, triquetrous and very rough on the edges above, leafy towards the root, and sheathed, rather slender; staminate spike single, about 1½ inch long and rather thick, short-pedunculate, often pistillate at the base, and sometimes in the middle, or both, the rest destitute of pistils; pistillate spikes erect, sessile, rough-bracteate, varying in number, sometimes 1–3 short and approximate, and near the staminate having stamens at the apex with two or three and longer spikes below not androgynous, sometimes only two or three pistillate spikes, of which the upper is short and the lower longer and

more remote; stigmas two; perigynium ovate-oblong or obovate, very short rostrate, entire at the orifice, nerved and lens-like, scarcely stiped; pistillate scale oblong, obtuse, pale on the keel, and near twice as long as the fruit.

Carex Barbaræ (*Dewey*): spicis staminiferis terminalibus 2 raro 3 erectis cylindraceis, suprema longa pedunculata, inferiore breviore illi contigua, infima sub-elongata; pistilliferis 3 longo-cylindraceis, 2–4-uncialibus gracilibus, superiore apice staminifera brevi-bracteata erecta, inferioribus longioribus subremotis subrecurvis basi laxifloris brevi-vaginatis foliaceo-bracteatis, omnibus nigro-purpureis; perigyniis distigmaticis oblongis obovatis apiculatis ore integris, squama oblongo obovata dorso pallida mucronata brevioribus; culmo erecto glauco longe-foliato vaginatoque. Banks of streams, Santa Barbara, California; *Parry.*—Culm 16–20 inches high, erect, with long leaves towards the base and long leafy bracts above, glaucous; spikes 3–6, cylindric, slender, blackish-purple; staminate terminal 1–3, commonly 2, the upper nearly two inches long, pedunculate, the lower sessile, contiguous and shorter, the third longer than the last and more remote; pistillate 3, long-cylindric, 2–4 inches long, slender; the upper staminate at the apex, short-bracteate, erect; the lower longer, subremote, subrecurved, loose-flowered at the base and short-sheathed; perigynium oblong-obovate, short-rostrate, entire at the orifice, stigmas 2, pistillate scale oblong-obovate, on the back pale, and the nerve extended into a mucronate point, making the end of the scale sometimes emarginate. The locality gives the name of the species.

Carex Schottii (*Dew.*): spicis staminiferis terminalibus 3–5 erectis nigro-rubris approximatis prope geminatis cylindraceis, superiore longa 3-unciali medio inflata, inferioribus brevioribus sessilibus contiguis vel infima remotiore et interdum geminata; pistilliferis 3 raro 4 perlongo-cylindraceis gracillimis 6–8 uncialibus perlaxifloris inæqualiter pedunculatis, inferioribus longe pedunculatis folioso-bracteatis basi vaginatis vix fructiferis vel abortivis, cum squamis oblongis arctis obovatis vix acutis; perigynio carente vel nimis immaturo; culmis superne scabris subprostratis? cum foliis bracteisque viridi glaucis. Banks of rivers, Santa Barbara, California; *Parry.*—This species has very variable spikes and form, as the description shows; spikes 6–8, cylindric; sometimes staminate 5 and pistillate 3, sometimes 4 and 3, sometimes 3 and 3, or again 3 and 4, most of which are long, and some very long; the staminate upper 3 are approximate, so as to be almost geminate, the highest 3 inches long and ventricose in the middle, and the lower a little remote and shorter, often one lower and a little remote and rather long, and on one specimen geminate and one quite short; the staminate scale oblong, obovate, dark red and pale on the back; pistillate spikes 3, rarely 4, very long and slender, 4–8 inches, very loose-flowered, unequally pedunculate, the lowest long pedunculate and long vaginate, all leafy bracteate, with scarcely the rudiment of fruit, or abortive, and with a narrow, oblong, obovate scale scarcely acute; perigynium wanting, or too immature; culm triquetrous above and scabrous, with glaucous leaves and bracts. This species has some affinity to C. Darwinii, *Boott. in Trans. Linn.* 20, *p* 120, but the numerous differences far separate the two. There may have been some crushing of the culms to account for their prostrate appearance, without which, at least, the pistillate spikes must have been long-retrocurved as in C. pendula, *Gooden.*

Carex phyllostachys, *Meyer*, *Trans. Acad. St. Petersb.* Collected in California by Dr.

Parry. Clearly distinct from Carex Geyeri, *Boott.*, and closely related to Carex Wildenowii, *Schk.*

Carex umbellata, *Schk. Car. II, p.* 75, *t. Ww w. fig.* 171, var. vicina, *Dew. in Sill. Journ.* 9, *p.* 31, *&* 11, *p.* 316, *t. D. f.* 13. Often with three pistillate spikes near the staminate spike, as well as the radical spikes, on the same tuft. Woods on the Colorado and Blanco rivers, Texas; *Wright.* In both these localities, the plant described and drawn by *Schk.*, and the variety also abound together, the latter most common.

Carex Thurberi (*Dewey*): spicis 4 oblongo-cylindraceis pedunculatis foliaceo-bracteatis; spica staminifera terminali solitaria sublonga cum squamis oblongis obtusis mucronatis fulvis; pistilliferis 3 subcrassis vix nutantibus densifloris sub-approximatis, superioribus vix vaginatis, infima cum pedunculo sublongiore vaginato exserto; perigyniis tristigmaticis ovato oblongis multo-nervosis subventricosis brevi-conico-rostratis bidentatis squama brevi-oblonga obtusa dorso trinervata scabro-aristata longioribus vel basi spicarum brevioribus; culmis et foliis margine scabris.—Mabibi, Sonora, June; *Thurber.*—Culm two feet high, erect, scabrous above and smooth below the spikes, leafy towards the base; upper leaf vaginate and long as culm, and with the leafy bracts rough on the edges; staminate spike single, erect, long, and bracteate; pistillate spikes three, oblong, cylindric, thickish, densely flowered, pedunculate, the lowest vaginate, with an exsert peduncle; stigmas three; perigynium ovate or oblong, many-nerved, tapering into a shortish beak, bidentate, some inflated or ventricose; pistillate scale short, oblong, obtuse, scabrous cuspidate, shorter than the fruit, except at the base of the spikes it is longer. This differs much from C. hystricina, *Willd.*, to which it is related.

Carex hystricina, *Willd. Spec. Plant.* 4, *p.* 232. On the banks of the Limpio, Texas; and at Santa Rita del Cobre, New Mexico; *Bigelow.*

Carex Wrightii (*Dewey*): spicis staminiferis 2; raro 3; oblongo cylindraceis erectis, terminali longiore brevi-pedunculata, secunda brevi illa contigua sessili raro remotiuscula, tertia remotiore, omnibus bracteatis cum squama oblonga acuta castanea inferne aristata; spicis pistilliferis 2–3 oblongo cylindraceis gracilibus sublaxifloris remotis exserte pedunculatis, superiore apice staminifera evaginata, infima longe vaginata et longe exserta, omnibus foliaceo-bracteatis; perigyniis tristigmaticis ovatis subconicis subtriquetris brevi-rostratis multo-nervatis ore bilabiatis subscabris vix ventricosis squama ovato-oblonga cuspidata paulo longioribus vel inferne paulo brevioribus. In woods on the Colorado of Texas, and near the Rio Grande; *Wright.* Culm about a foot high, erect or flaccid, with subradical flat nerved vaginate leaves and leafy bracts nearly equalling the culm; spikes 3–6, oblong-cylindric; staminate 2, upper an inch long and pedunculate, the lower one-third as long and commonly close to it, rarely a third, which is remotish, and all bracteate; pistillate spikes 2–3, remote and pedunculate, the upper staminate at the apex, the lower longer pedunculate and exsert; all rather loosely flowered, especially towards the peduncle; stigmas three; perigynium ovate, sub-conic, slightly triquetrous, short and round, rostrate, many-nerved, bilabiate and subscabrous; scale ovate-oblong, rough cuspidate, a little shorter than the fruit, except on the lower part of the spike where it often surpasses the fruit. Differs from C. scabrata, *Schw.*, to which it is nearly related in the number of staminate spikes, and in various particulars of the fertile spikes and their fruit. Named after Mr. C. Wright, one of the exploring party.

Carex lanuginosa, *Michx. Flor. Bor.-Amer.* 2, *p.* 175. Rio Mimbres and Santa Rita del Cobre, New Mexico; *Bigelow, Thurber.*

EQUISETACEÆ.*

Equisetum arvense, *Linn.; Pursh, Fl.* 2, *p.* 651; *Braun & Engelm. in Sill. Jour.* 46, *p.* 83; *Torr. Fl. N. York,* 2, *p.* 480. Near the Mimbres, New Mexico; *Thurber.* Small sterile specimens.

Equisetum lævigatum, *Braun & Engelm. l. c.* Banks of the Rio Grande, near El Paso, and near the Coper Mines.

Equisetum robustum, *Braun & Engelm. l. c.* Banks of the Rio Grande.

FILICES.

Woodwardia radicans, *Willd. Sp.* 5, *p.* 418; *Hook. & Arn. Bot. Beech. p.* 162 & 405. W. Chamissoi, *Brack. Ferns of the U. S. Expl. Exped. p.* 138. Between San Diego and the Colorado; *Schott.*

Adiantum Capillus-veneris, *Linn.; Hook. Sp. Fil.* 2, *p.* 36. From San Antonio to the Rio Grande, and northward to New Mexico; common along running streams.

Adiantum Chilense, *Kaulf. Enum. p.* 207; *Hook. l. c. p.* 43. California, Texas; *Wright,* (No. 2123.)

Var. hirsutum, *Hook. l. c. p.* 43, *t.* 75, *B.* A. pilosum, *Fée, Gen. Fil. p.* 118. Rocks near the mouth of the Pecos; *Bigelow.*

Pteris aquilina, *Linn.* Var. *β.* lanuginosa, *Hook. Fl. Bor.—Am.* 2, *p.* 263; *Brack. l. c. p.* 119. P. lanuginosa, *Hook. & Arn. Bot. Beech. p.* 405; *Agardh, Gen. Pterid.* 51.? Between San Diego and the Colorado; *Schott.*

Pellæa flexuosa, *Link. Fil. Sp. p.* 60; *Fée, Gen. Fil. p.* 129. Allosorus, *Kunze; Schk. Fil. Supp.* 1, *p.* 46, *t.* 23. Pteris, *Hook. Ic. Pl.* 2, *t.* 119. On running streams near the Rio Grande, and along the San Pedro and the Gila. (No. 825, *Wright.*)

Pellæa andromedæfolia, *Fée, l. c.* Allosorus andromedæfolius, *Kunze, Anal. Pterid. p.* 18, *t.* 11. Pteris, *Kaulf. Enum. Fil. p.* 188. Between San Diego and the Colorado; *Schott.*

Pellæa pulchella, *Fée, l. c.* Allosorus pulchellus, *Mart. & Gal. Fil. Mex. p.* 47, *t.* 10, *fig.* 1. A. formosus, *Liebmann, Mex. Breg. p.* 68. From Howard's Springs and the Pecos to the San Pedro and the Waterholes; *Bigelow, Schott.* (No. 824, *Wright.*)

Pellæa mucronata. Allosorus mucronatus, *D. C. Eaton in Sill. Jour. (ser.* 2,) 64, *p.* 138; *Torr. Bot. Whippl. Rep. p.* 160. Pellæa Wrightiana, longimucronata, & Ornithopus, *Hook. Sp. Fil.* 2, *p.* —, *t.* 115 & 116, (*ined.*) On rocks from the Rio Grande, westward, to the Colorado and California. (No. 2130 and 2131, *Wright.*) This fern varies in height from two inches to over a foot. In its simplest state the upper pinnæ are trifoliate, and the lower quinquefoliate; from this it varies to a state in which the secondary rachis bear numerous and minute trifoliate pinnules. Some of the forms resemble P. ternifolia, *Link. l. c.*, (Pteris ternifolia, *Hook. & Grev. Ic. Fil.* 2, *t.* 126,) but have not the narrow linear outline of that species, nor its obovate-cuneate sterile pinnules.

Pellæa atropurpurea, *Link. l. c.* Pteris atropurpurea, *Willd. Sp. Pl.* 5, *p.* 375; *Pursh, l. c.* 2, *p.* 668. Platyloma atropurpurea, *J. Smith; Torr. Fl. New York,* 2, *p.* 488. Allosorus atropurpureus, *Presl. Tent. Pterid. p.* 153.; *Gray, Manual, 2d ed. p.* 591 Along the Mimbres, New Mexico; *Bigelow.*

* This and the following orders of Acrogens were elaborated by Daniel C. Eaton, esq., of the Scientific School of Yale College. The Grasses will be the subject of a separate report, to be published in the Smithsonian contributions.

CHEILANTHES WRIGHTII, *Hook. Sp. Fil.* 2, *p.* 87, *t.* 110, *A.* Near the Rio Grande and the Gila.

CHEILANTHES ALABAMENSIS, *Kunze in Sill. Jour.* (*2d ser.*) 6, *p.* 87 ; *Hook. l. c. p.* 89, *t.* 103, *B.* Rocky and shady ravines, at the mouth of the Pecos ; *Bigelow.* On the lower Rio Grande, *Schott.*

CHEILANTHES TOMENTOSA, *Link. l. c p.* 65 ; *Hook. l. c. p.* 96, *t.* 109, *A.* From the Rio Grande westward along the Gila to the Colorado.

CHEILANTHES LANOSA. C. vestita, *Hook. l. c. p.* 98, *t.* 108, *B.* Nephrodium lanosum, *Michx. Fl. Bor.-Am.* 2, *p.* 270? Myriopteris gracilis, *Fée, l. c. p.* 150, *t.* 29, *f.* 6. Along the Rio Grande ; *Wright.* The name of C. vestita unquestionably belongs to the fern described and figured by Professor Gray under that name in the *Manual,* (*2d ed.*) *p.* 592, *t.* 10.

CHEILANTHES LINDHEIMERI, *Hook. l. c. p.* 101, *t.* 107, *A.* At the Copper Mines and in Wild-rose Pass ; *Bigelow, Schott.*

CHEILANTHES FENDLERI, *Hook. l. c. p.* 103, *t.* 107, *B.* Near the Copper Mines, New Mexico ; *Bigelow.* Sonora ; *Parry.* Some of the specimens are fully a foot high, and have the pinnæ more remote than usually.

CHEILANTHES ASPERA, *Hook. l. c. p.* 111, *t.* 108, *A.* Lower Rio Grande ; *Schott.* Near the Copper Mines and along the San Pedro ; *Bigelow.* The characters of a new species of this interesting genus are subjoined.

CHEILANTHES GRACILLIMA (sp. nov.) : fronde lineari-oblonga bipinnata; pinnis pinnulisque confertis, pinnulis sessilibus ovatis obtusis superne pauciter albo-pilosis subtus tomento denso fulvo obtectis, margine reflexo involucrem continuum efficienti.—Stipites ebenei plures ecaudice paleaceo subrepente erecti. Rachides primarii secundariique cum stipite juniore paleis gracilibus instructi. Cascade mountains of Oregon at 7,000 feet of altitude, latitude 44°, collected by Dr. Newberry in Williamson's Expedition, and by Dr. Bigelow in Whipple's Expedition. A very delicate little fern of the *Lendigera* group. Stipes 2–3 inches long; frond half as long, and 3–5 lines wide ; pinnæ 7–10 pairs ; pinnules 2–3 pairs.

HYPOLEPIS CALIFORNICA, *Hook. l. c. p.* 71, *t.* 88, *A.* Collected between San Diego and the Colorado ; *Schott.*

NOTHOCHLÆNA RUFA, var. *β. Presl, Reliq. Hœnke.* 1, *p.* 19; *Martens & Galeotti, l. c. p.* 45; *Leibmann, l. c. p.* 62. Cheilanthes ferruginea, *Willd. Herb.*; *Link. l. c. p.* 65. Along the San Pedro and Rio Grande, and on the Organ mountains of New Mexico.

NOTHOCHLÆNA SINUATA, *Kaulf. l. c. p.* 135 ; *Kunze in Schk. Fil. Supp.* 1, *p.* 95, *t.* 65. Acrostichum, *Swartz, Syn. p.* 14. Western Texas from San Antonio to the Rio Grande, and along that river northward to New Mexico. *C. Wright, No.* 814, (1849.) A variety of this species having smaller and crenated, not pinnatifid pinnæ with whiter ciliated scales beneath, and a denser stellate pubescence above, looking through a lens like newly fallen snow, was collected in rocky places near the San Pedro and the Gila.

NOTHOCHLÆNA PULVERACEA, *Kunze in Linnœa,* 13, *p.* 135, & 18, *p.* 338; *Liebmann, Mex. Bregn. p.* 63. Lower Rio Grande ; *Schott.* Rocky places on the Pecos and San Pedro ; *Bigelow.* No. 820 and 2124, *Wright.* Kunze and Liebmann consider this distinct from Cheilanthes pulveracea, *Presl, Rel. Hœnk.* 1, *p.* 64 ; *Hook. Sp. Fil.* 2, *p.* 78.

NOTHOCHLÆNÆ CRETACEA, *Liebmann l. c. p.* 64? At Painted Camp and at the entrance to Wild-rose Pass ; *Bigelow, Schott. C. Wright, No.* 821, (1849.) Our plant agrees well with the description cited, but has not been compared with authentic specimens. It grows in tufts about 6–8 inches high, and has much the appearance of Gymnogramme triangularis, *Kaulf.*;

the frond being five angled and covered beneath with a dense light-yellow farina. Stipes stout, reddish brown and shining; frond 1–2 inches long and fully as wide.

Neurogramme pedata, *Link, Fil. Sp. p.* 139; *Fée, Gen. p.* 168. Hemionitis, *Swartz, Syn. Fil. p.* 20 *&* 209, *t.* 1, *f.* 3. Along the Rio Grande, San Pedro, and Gila; mostly on rocks.

Gymnogramme triangularis, *Kaulf. Enum. p.* 73; *Hook. & Grev. Ic. Fil. t.* 153; *Hook. Fl. Bor.-Am.* 2, *p.* 259. Between San Diego and the Colorado; *Schott.*

Asplenium septentrionale, *Hoffmann, Deutschlands Flora,* 2, *p.* 12; *Hook. & Arn. Brit. Flor. ed.* 7, *p.* 588; *Lindley & Moore, Nature Printed Ferns, t.* 41, *C.* On Ben Moore, New Mexico, May; *Bigelow.* (No. 2122, *Wright.*)

Asplenium Trichomanes, *Linn.; Torr. Fl. New York,* 2, *p.* 491; *Lindl. & Moore, l. c. t.* 39. New Mexico; *Wright,* (No. 2121.)

Asplenium ebeneum, *Willd. Sp. Pl.* 5, *p.* 329; *Pursh, Fl.* 2, *p.* 666; *Torr. Fl. New York,* 2, *p.* 492. In the Great Cañon of the Rio Grande; *Parry.*

Polypodium Californicum, *Kaulf. Enum. p.* 102; *Hook. & Arn. Bot. Beech. p.* 161 *&* 405; *Hook. Fl. Bor.-Am.* 2, *p.* 258. (*Excl. Syn. Hook. & Grev. Ic. Fil. t.* 56.) San Diego; *Bigelow.*

Polypodium incanum, *Willd. Sp. Pl.* 5, *p.* 174; *Pursh, Fl.* 2, *p.* 659; *Gray, Manual, p.* 590. On igneous rocks near the Great Cañon of the Rio Grande; *Parry.*

Lastrea patens, *Presl, Tent. Pterid. p.* 75; *Liebmann, l. c. p.* 119. Aspidium, *Swz.; Willd. Sp. Pl.* 5, *p.* 244; *Hook. & Arn. Bot. Beech. p.* 162. A. molle, *Kunze in Sill. Jour.* (*ser.* 2) 6, *p.* 83. Common in western Texas and near the Rio Grande. This fern is found from Florida to Texas and in California, (*Bot. Beech. l. c.*) Our specimens agree with those from the Kew Gardens in Herb. Gray, and do not present the venation of Nephrodium molle so well shown in *Schott's Genera Filicum.*

Lastrea arguta, *Brack. l. c. p.* 196. Aspidium argute, *Kaulf. l. c. p.* 242; *Torr. Bot. Whippl. Rep. p.* 160. Between San Diego and the Colorado. In *Lindley & Moore Nat. Print. Ferns,* 18, this is said to be only a larger and more developed form of L. rigida, *Presl.*

Polystichum munitum, *Presl, l. c. p.* 83; *Brack. l. c. p.* 203. Aspidium munitum, *Kaulf. l. c. p.* 236; *Hook. Fl. Bor.-Am.* 2, *p.* 261. Between San Diego and the Colorado.

Phanerophlebia nobilis, *Presl, l. c. p.* 85; *Liebmann, l. c. p.* 124. Aspidium nobile, *Schlecht. Linnæa* 5, *p.* 610; *Kunze in Schk. Fil. Supp.* 1, *p.* 155, *t.* 67. A. pumilum, *Mart. & Gal. l. c. p.* 64, *t.* 17, *f.* 1. Hueco tanks in western Texas, and at Van Horn's Well.

Woodsia obtusa, *Torr. Catal. pl. N. Y. Fl. N. Y.* 2, *p.* 500; *Hook. Sp. Fil.* 1, *p.* 62. W. Perriniana, *Hook. & Grev. Ic. Fil. t.* 68. Hills near the Copper Mines. The specimens are all small, and the pinnules are crisped and glandularly ciliated. The same form occurs on the Columbia river.

Anemia Mexicana, *Klotsch in Linnæa,* 18, *p.* 526; *Kunze in Schk. Fil. Supp.* 2, *p.* 75, *t.* 131; *Hook. Ic. Pl.* 988. Clefts of rocks in a deep arroyo near the mouth of the Pecos, and at Medina creek. (No. 826 and 2117, *Wright.*)

LYCOPODIACEÆ.

Selaginella rupestris, *Spring, Monog. Lycop.* 2, *p.* 55. Lycopodium rupestre, *Linn.; Hook. Fl. Bor.-Am.* 2, *p.* 267. Along the Rio Grande at Eagle Pass and at the mouth of the Pecos, &c.; *Schott, Bigelow.* (No. 2116, *Wright.*) Var. *β. Hook. l. c. excl. syn. Presl.* S. struthioloides *Torr. Bot. Whippl. Rep. p.* 159, *excl. syn. Presl.* Mountains near El Paso; *Wright.* Organ

mountains, New Mexico; *Bigelow.* Lyc. struthioloides, *Presl.* referred by Hooker, and following him by Dr. Torrey, to the slender variety of the above, was considered by Spring (*l. c.* 1, *p.* 32) a form of *Lyc. taxifolium*, though he says he did not carefully examine the original specimen in the Imperial herbarium at Vienna.

Selaginella lepidophylla, *Spring*, *l. c. p.* 72. Lycopodium lepidophyllum, *Hook. Ic. Pl.* 2, *t.* 162, 163. In the valley of the Rio Grande, and near the San Pedro, mostly on lime rock. *C. Wright*, No. 2114, (1851–2).

HYDROPTERIDES.

Marsilea uncinata, *A. Braunin Sill. Jour.* (*2d ser.*) 3, *p.* 55. New Mexico; *Dr. Bigelow*, No. 166.

Marsilea vestita, *Hook. & Grev. Ic. Fil. t.* 159. San Elceario on the Rio Grande and elsewhere in western Texas. *C. Wright*, No. 2112, (1851–2).

Marsilea macropoda, *A. Braun*, *l. c.* Western Texas and along the Rio Grande. *C. Wright*, No. 2111 (1851–2).

Azolla Caroliniana, *Willd. Sp.* 5, *p.* 541; *Torr. Fl. N. York*, 2, *p.* 513. Rio San Antonio, and Rio Gila.

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DESCRIPTION OF THE PLATES.

PLATE I. CLEMATIS LASIANTHA.—Page 29.

A PORTION OF THE PLANT OF THE NATURAL SIZE.

Fig. 1. A perfect flower. Fig. 2. A head of carpels on its peduncle; of the natural size.

PLATE II. DELPHINIUM.—Page 30.

UPPER PORTION OF THE PLANT OF THE NATURAL SIZE.

Fig. 1. A sepal; enlarged. Fig. 2. One of the upper petals; equally enlarged. Fig. 3. One of the lower petals; also enlarged. Fig. 4. A stamen; magnified. Fig. 5. The three pistils; also magnified.

PLATE III. DENDROMEEON RIGIDUM.—Page 32.

A. A FLOWERING PORTION OF THE PLANT. B. A PORTION IN FRUIT.

Fig. 1. A flower bud; magnified. Fig. 2. A stamen; more magnified. Fig. 3. An ovule; still more magnified. Fig. 4. A seed; equally magnified. Fig. 5. The same; longitudinally divided. Fig. 6. The embryo; highly magnified.

PLATE IV. ISOMERIS ARBOREA.—Page 35.

UPPER PORTION OF THE PLANT OF THE NATURAL SIZE.

Fig. 1. Plan of the flower. Fig. 2. A flower bud. Fig. 3. An expanded flower. Fig. 4. A petal. Fig. 5. A stamen. Fig. 6. Cross section of the anther. Fig. 7. A flower from which the petals have been removed, showing the torus and its appendages. Fig. 8. Transverse section of the ovary. Fig. 9. A seed, seen in front. Fig. 10. The same; side view. Fig. 11. Longitudinal section of the same. Fig. 12. The embryo. All the figures more or less magnified.

PLATE V. FRANKENIA GRANDIFOLIA.—Page 35.

A BRANCH OF THE NATURAL SIZE.

Fig. 1. A flower. Fig. 2. Transverse section of the calyx. Fig. 3. A flower, with the calyx and part of the petals removed. Fig. 4. A petal, showing the inner side. Fig. 5. A stamen, showing the posterior side. Fig. 6. The pistil. Fig. 7. The ovary, divided longitudinally. Fig. 8. Transverse section of the same. All the figures more or less enlarged.

PLATE VI. THURBERIA THESPESIOIDES.—Page 40.

A BRANCH OF THE NATURAL SIZE.

Fig. 1. A flower, divided longitudinally; the corrolla removed; enlarged. Fig. 2. Transverse section of the ovary; also enlarged. Fig. 3. Fruit of the natural size. Fig. 4. The fruit enlarged and longitudinally divided. Fig. 5. Transverse section of the sáme. Fig. 6. A seed, longitudinally divided and enlarged. Fig. 7. The embryo.

PLATE VII. LITHRÆA LAURINA.—Page 44.

A. A FLOWERING BRANCH. B. A BRANCH WITH FRUIT: BOTH OF THE NATURAL SIZE.

Fig. 1. A flower; enlarged. Figs. 2 and 3. These figures are incorrect, as they do not show the disk upon which the petals and stamens are inserted. Fig. 4. The pistil; more magnified. Fig. 5. The same, longitudinally divided. Fig. 6. The ovule; more magnified. Fig. 7. A drupe, with the persistent calyx. Fig. 8. The same, longitudinally divided.

PLATE VIII. HOLACANTHA EMORYI.—Page 45.

Fig. 1. A flowering branch of the sterile plant. Fig. 2. A branch of the fertile plant. Fig. 3. A branch in fruit: all the figures of the natural size. Fig. 4. A flower bud, from the sterile plant. Fig. 5. A sterile flower; and Fig. 6. The same, longitudinally divided. Fig. 7. An inside view of a magnified stamen. Fig. 8. An outside view of the same. Fig. 9. Compound pistil of a fertile flower; magnified. Fig. 10. The same, longitudinally divided and more magnified. Fig. 11. A drupe, magnified; and Fig. 13. The same, longitudinally divided. Fig. 12. The carpophore.

PLATE IX. CEANOTHUS RIGIDUS.—Page 45.

A, A FLOWERING, AND B, A FRUCTIFEROUS, BRANCH, OF THE NATURAL SIZE.

Fig. 1. A flower; magnified. Fig. 2. The pistil; more magnified. Fig. 3. The ovary; still more magnified, and longitudinally divided. Fig. 4. Transverse section of the same. Fig. 5. The persistent base of the calyx.

PLATE X. CEANOTHUS DENTATUS.—Page 46.

A FLOWERING BRANCH, OF THE NATURAL SIZE.

Fig. 1. A flower; magnified. Fig. 2. Petal from a bud. Fig. 3. Stamen, from the same. Fig. 4. Petal and stamen from an open flower. Fig. 5. Pistil and disk; the ovary with three fleshy protuberances at the summit. Fig. 6. Transverse section of the ovary. Fig. 7. Longitudinal section, showing one of the cells laid open, and showing the erect ovule. Fig. 8. A separate ovule. All the figures more or less magnified.

PLATE XI. CEANOTHUS CRASSIFOLIUS.—Page 46.

A FLOWERING BRANCH, OF THE NATURAL SIZE.

Fig. 1. An expanded flower; magnified. Fig. 2. An unexpanded flower; also magnified. Fig. 3. A petal and stamen from the same. Fig. 4. Transverse section of the ovary; more magnified. Fig. 5. Portion of the ovary; more highly magnified; showing one of the cells with its contained ovule.

PLATE XII. POLYGALA NUTKANA.—Page 49.

A PLANT OF THE NATURAL SIZE.

Fig. 1. A flower laid open; moderately enlarged. Fig. 2. Sepals; *a*, the upper odd one; *b*, a lateral upper one; *c*, a wing. Fig. 3. Corolla laid open, showing the stamens; magnified. Fig. 4. An anther, considerably more enlarged. Fig. 5. The pistil; magnified. Fig. 6. A capsule divided longitudinally, showing the pendulous seeds, considerably magnified. Fig. 7. Transverse section of the same. Fig. 8. A seed; more highly magnified.

PLATE XIII. KRAMERIA CANESCENS.—Page 49.

A PORTION OF THE PLANT OF THE NATURAL SIZE.

Fig. 1. Plan of the flower. Fig. 2. A flower bud and bracteoles; somewhat enlarged. Fig. 3. An expanded flower; more enlarged. Fig. 4. The three upper petals. Fig. 5. The two lower fleshy and glandular petals; one an inside view, the other an outside view; the last two figures considerably magnified. Figs. 6–8. Different magnified views of a stamen, (fig. 6 shows the vertical opening.) Fig. 9. The pistil; moderately enlarged. Fig. 10. The same considerably magnified and divided longitudinally. Fig. 11. Transverse section of the same. Fig. 12. The ovules, or rather young seeds detached. Fig. 13. A seed; considerably magnified. Fig. 14. A fruit of the natural size. Fig. 15. The upper part of one of the barbed prickles of the fruit pretty highly magnified.

PLATE XIV. PICKERINGIA MONTANA.—Page 51.

A BRANCH OF THE NATURAL SIZE.

Fig. 1. The vexillum. Fig. 2. One of the wings. Fig. 3. A keel-petal. Fig. 4. A flower with part of the calyx and the corolla cut away. The preceding figures moderately enlarged. Fig. 5. Part of a stamen; considerably magnified. Fig. 6. The pistil, equally maginfied, and the ovary longitudinally divided. Fig. 7. An immature seed; more highly magnified.

PLATE XV. HOSACKIA GRACILIS.—Page 54.

A PLANT OF THE NATURAL SIZE, IN FLOWER AND FRUIT.

Fig. 1. A flower somewhat enlarged. Fig. 2. Separate petals; magnified; *a*, the vexillum; *b*, one of the wings; *c*, one of the keel petals. Fig. 3. A seed; considerably magnified.

PLATE XVI. ASTRAGALUS (PHACA) LEUCOPSIS.—Page 56.

A. UPPER PART OF THE PLANT OF THE NATURAL SIZE. B. A PEDUNCLE BEARING MATURE PODS.

Fig. 1. A flower with the petals removed; moderately enlarged. Fig. 2. Separate petals; *a*, the vexillum; *b*, one of the wings; *c*, the keel. Fig. 3. The stamens and pistil; more magnified. Fig. 4. The pistil with its stipe; equally magnified. Fig. 5. The ovary laid open; more magnified. Fig. 6. A very young seed; considerably magnified. Fig. 7. Transverse section of a pod, of the natural size. Fig. 8. A seed; considerably magnified.

PLATE XVII. ASTRAGALUS CROTALARIÆ.[1]—Page 56.

A. UPPER PART OF THE PLANT. B. A RACEME OF PODS: BOTH OF THE NATURAL SIZE.

Fig. 1. A separate flower; moderately enlarged. Fig. 2. The keel; more enlarged. Fig. 3. The stamens, with the pistil enclosed in the sheath of filament; equally magnified. Fig. 4. The pistil detached. Fig. 5. An ovule; pretty highly magnified.

PLATE XVIII. CHÆTOCALYX SCHOTTII.—Page —.

A FLOWERING BRANCH OF THE NATURAL SIZE.

Fig. 1. The petals separated; *a*, the vexillum; *bb*, the wings; *c*, the keel; moderately magnified. Fig. 2. Lower portion of a wing; more magnified. Fig. 3. The monadelphous stamens and the exserted style; still more magnified. Fig. 4. Pistil with the cavity of the ovary laid open; equally magnified. Fig. 5. Flower from which the corolla has fallen; less magnified. Fig. 6. Immature pod, showing the wing-like termination; moderately enlarged. Figs. 7 and 8. Pods of C. Wislizeni, of the natural size. Fig. 9. A seed of the natural size. Fig. 10. The embryo detached and magnified.

PLATE XIX. ACÆNA PINNATIFIDA.—Page 63.

A PLANT OF THE NATURAL SIZE.

Fig. 1. An expanded flower; considerably magnified. Fig. 2. The calyx, shown separately and equally magnified. Fig. 3. Part of a stamen; more magnified. Fig. 4. A flower divided longitudinally, considerably magnified. Fig. 5. The pistil detached and equally magnified. Fig. 6. An ovule.

PLATE XX. ADENOSTOMA SPARSIFOLIA.—Page 63.

A BRANCH OF THE NATURAL SIZE.

Fig. 1. A flower with bracts at the base of the calyx; magnified. Fig. 2. The same with the bracts cut away. Fig. 3. A portion of the flower, more magnified; showing a petal and three stamens. Fig. 4. The pistil; equally magnified. Fig. 5. The ovary of the same laid open, and exposing one of the ovules. Fig. 6. Transverse section of the ovary. Fig. 7. Fructiferous calyx, with the persistent filaments, magnified. Fig. 8. The fruit detached from the same.

PLATE XXI. ROSA GYMNOSPERMA.—Page —.

A FLOWERING BRANCH OF THE NATURAL SIZE.

Fig. 1. A petal; enlarged. Fig. 2. A stamen; considerably magnified. Fig. 3. Longitudinal section of a flower, showing the pistils in the ventricose calyx-tube; the petals removed; enlarged. Fig. 4. A detached pistil; more enlarged. Fig. 5. Longitudinal section of the ovary; magnified. Fig. 6. Cross section of the same; equally magnified.

[1] Incorrectly named Astragalus crotalarioides on the plate.

PLATE XXII. PETALONYX THURBERI.—Page 67.

UPPER PART OF THE PLANT OF THE NATURAL SIZE.

Fig. 1. Hairs of the leaves and stem; highly magnified. Fig. 2. An expanded flower, with its bract and bracteoles; considerably magnified. Fig. 3. The same, with the petals and stamens removed; more magnified. Fig. 4. A petal; equally magnified. Fig. 5. Part of a stamen. Fig. 6. Longitudinal section of the ovary. Fig. 7. The fruit. Fig. 8. Longitudinal section of the same; the last four figures considerably magnified.

PLATE XXIII. RIBES MENZIESII.—Page 68.

A BRANCH OF THE NATURAL SIZE.

Fig. 1. A flower, with the calyx and corolla longitudinally divided; enlarged. Fig. 2. Limb of a petal; considerably magnified. Fig. 3. A stamen; the lower part of the filament cut off; equally magnified. Fig. 4. Transverse section of the ovary; enlarged. Fig. 5. An ovule detached; magnified.

PLATE XXIV. ECHEVERIA LANCEOLATA.—Page 69.

A PLANT OF THE NATURAL SIZE, (WITHOUT THE ROOT.)

Fig. 1. A flower; enlarged. Fig. 2. A portion of the flower laid open; more enlarged. Fig. 3. The pistils; magnified. Fig. 4. One of the pistils, considerably magnified and divided longitudinally. Fig. 5. Transverse section of the same. Fig. 6. A detached ovule highly magnified. Fig. 7. A ripe carpel; magnified.

PLATE XXV. SAXIFRAGA PARRYI.—Page 69.

AN ENTIRE PLANT OF THE NATURAL SIZE.

Fig. 1. A flower; enlarged. Fig. 2. Inside view of a portion of a flower; more enlarged. Fig. 3. A petal and stamen, showing their insertion on the calyx; still more enlarged. Fig. 4. The ovary; considerably magnified. Fig. 5. Transverse section of the ovary; more magnified. Fig. 6. Fructiferous calyx; enlarged. Fig. 7. A seed; pretty highly magnified. Fig. 8. The same longitudinally divided. Fig. 9. A transverse section of the same. Fig. 10. The embryo detached and more highly magnified.

PLATE XXVI. DEWEYA ARGUTA.—Page 70.

UPPER PART OF THE PLANT OF THE NATURAL SIZE.

Fig. 1. Fruit, moderately enlarged. Fig. 2. Upper portion of the same, considerably magnified. Fig. 3. Transverse section of the same, and the position of the petals indicated.

PLATE XXVII. EURYPTERA LUCIDA.—Page 70.

ENTIRE PLANT OF THE NATURAL SIZE.

Fig. 1. A flower; enlarged. Fig. 2. A petal; more enlarged. Fig. 3. The fruit; enlarged. Fig. 4. Transverse section of the same; considerably magnified. Fig. 5. Longitudinal section

of a carpel in the direction of the shorter diameter; magnified. Fig. 6. The embryo detached and highly magnified.

PLATE XXVIII. APIASTRUM ANGUSTIFOLIUM.—Page 71.

AN ENTIRE PLANT OF THE NATURAL SIZE.

Fig. 1. A flower; magnified. Fig. 2. A petal, (incorrectly drawn.) Fig. 3. A stamen; more magnified. Fig. 4. A fruit; pretty highly magnified. Fig. 5. The carpophore, with one of the carpels attached. Fig. 6. Transverse section of the fruit; highly magnified. Fig. 7. A seed; and Fig. 8, the nucleus detached; much magnified.

PLATE XXIX. LONICERA SUBSPICATA.—Page 71.

PART OF THE PLANT OF THE NATURAL SIZE.

Fig. 1. A flower; enlarged. Fig. 2. A berry; equally enlarged.

PLATE XXX. DICORIA CANESCENS.—Page 87.

PART OF THE PLANT OF THE NATURAL SIZE.

Fig. 1. A staminate flower; considerably magnified. Fig. 2. The same, with the corolla laid open, showing the monadelphous filaments deprived of their anthers. Fig. 3. A grain of pollen; highly magnified. Fig. 4. Abortive style of the staminate flower. Fig. 5. A head of flowers; the two large interior involucral scales nearly concealing the flowers; enlarged. Fig. 6. A ripe achenium; more enlarged. Fig. 7. One of the scales of the receptacle; magnified.

PLATE XXXI. TUCKERMANIA MARITIMA.—Page 92.

UPPER PART OF THE PLANT OF THE NATURAL SIZE.

Fig. 1. A ray-flower; enlarged. Fig. 2. A disk-flower; also enlarged. Fig. 3. Two of the stamens, their filaments united by one edge; more highly magnified. Fig. 4. The pistil; equally magnified. Fig. 5. An achenium; enlarged. Fig. 6. Cross section of the same; more enlarged.

PLATE XXXII. ACARPHÆA ARTEMISRÆFOLIA.—Page 95.

THE ENTIRE PLANT OF THE NATURAL SIZE.

Fig. 1. A flower; magnified.

PLATE XXXIII. ACTINOLEPIS MULTICAULIS.—Page 96.

AN ENTIRE PLANT OF THE NATURAL SIZE.

Fig. 1. A ray-flower; magnified. Fig. 2. A disk-flower; also magnified.

PLATE XXXIV. RAFINESQUIA CALIFORNICA.—Page 106.

UPPER PART OF THE PLANT OF THE NATURAL SIZE.

Fig. 1. A flower; enlarged. Fig. 2. Grains of pollen; highly magnified. Fig. 3. Achenia; magnified; *a*, an interior one; *b*, an exterior one.

PLATE XXXV. NEMACLADUS RAMOSISSIMUS.—Page 108.

A. A YOUNG PLANT WITH RADICAL LEAVES. B. A FULL GROWN PLANT IN FRUIT: BOTH OF THE NATURAL SIZE.

Fig. 1. A flower; considerably magnified. Fig. 2. Another view of a flower. (I have not verified the correctness of this figure.) Fig. 3. A petal; more magnified. Fig. 4. The stamineal column; equally magnified. Fig. 5. Part of a stamen; more magnified. Fig. 6. Stigma and part of the style; highly magnified. Fig. 7. Cross section of a capsule; considerably magnified. Fig. 8. A seed; highly magnified.

PLATE XXXVI. EMORYA SUAVEOLENS.—Page 121.

A BRANCH OF THE NATURAL SIZE.

Fig. 1. The calyx; magnified. Fig. 2. The corolla; equally magnified. Fig. 3. The same, laid open, showing the insertion of the stamens and the pistil; more magnified. 3*a*, anther and portion of the filament; more highly magnified. Fig. 4. Capsule; also magnified. Fig. 5. Transverse section of the same. Fig. 6. A seed; highly magnified. Fig. 7. The embryo; separated and still more highly magnified. Fig. 8. Plan of the flower.

PLATE XXXVII. SPHACELE CALYCINA.—Page 131.

UPPER PART OF THE PLANT OF THE NATURAL SIZE.

Fig. 1. The corolla, laid open, showing the stamens and pistil. Fig. 2. The 4-lobed ovary, gynophore, and lower part of the style.

PLATE XXXVIII. AUDIBERTIA GRANDIFLORA.—Page 132.

UPPER PART OF THE PLANT OF THE NATURAL SIZE.

Fig. 1. A flower; enlarged. Fig. 2. The corolla, laid open and more enlarged.

PLATE XXXIX. SALAZARIA MEXICANA.—Page 133.

A PORTION OF THE PLANT OF THE NATURAL SIZE.

Fig. 1. A flower; enlarged. Fig. 2. The corolla, laid open, showing the stamens and pistil. Fig. 3. One of the superior stamens; magnified. Fig. 4. The inflated fructiferous calyx; magnified. Fig. 5. A nutlet; considerably magnified. Fig. 6. The same, longitudinally divided.

PLATE XL. TRICHOSTEMA LANATUM.—Page 134.

UPPER PART OF THE PLANT OF THE NATURAL SIZE.

Fig. 1. A flower; enlarged. Fig. 2. The corolla, laid open and more enlarged.

PLATE XLI. TETRACLEA COULTERI.—Page 134.

A PLANT OF THE NATURAL SIZE.

Fig. 1. The corolla laid open; enlarged. Fig. 2. The pistil; equally enlarged. Fig. 3. The ovary; more enlarged. Fig. 4. Transverse section of the same; still more enlarged. Fig.

5. A seed; magnified. Fig. 6. The fruit and fructiferous calyx; one of the nutlets removed; magnified. Fig. 7. Inside view of a nutlet; equally magnified. Fig. 8. Transverse section of a nutlet; back view. Fig. 9. Longitudinal section of the same. Fig. 10. The embryo; equally magnified.

PLATE XLII. ERYTHRÆA CHIRONIOIDES.—Page 156.

AN ENTIRE PLANT OF THE NATURAL SIZE.

Fig. 1. A flower; enlarged. Fig. 2. One of the divisions of the calyx; magnified. Fig. 3. Calyx and fruit; magnified. Fig. 4. A seed; more highly magnified.

PLATE XLIII. ECHITES MACROSIPHON.—Page 158.

A PLANT OF THE NATURAL SIZE.

Fig. 1. A flower, with the narrow portion of the tube and the calyx cut away, and the upper part laid open; enlarged. Fig. 2. A stamen; magnified. Fig. 3. The stigma, with an anther adhering to it; equally magnified. Fig. 4. Longitudinal section of the ovaries; also magnified. Fig. 5. A placenta, with the ovules attached. Fig. 6. A seed with its tuft of hairs at the summit; magnified.

PLATE XLIV. ACERATES TOMENTOSA*.—Page 160.

UPPER PORTION OF THE PLANT OF THE NATURAL SIZE.

Fig. 1. A flower; enlarged. Fig. 2. One of the pollen masses suspended from a gland of the stigma; considerably magnified. Fig. 3. A pod of the natural size.

PLATE XLV. A. ASCLEPIAS NUMMULARIA.—Page 163.

A PLANT OF THE NATURAL SIZE.

Fig. 1. A flower; enlarged. Fig. 2. One of the hoods; magnified. Fig. 3. The same, laid open and showing the horn. Fig. 4. An anther, inside view; considerably magnified. Fig. 5. A pair of pollen masses attached to a gland of the stigma; more highly magnified. Fig. 6. A pod of the natural size.

PLATE XLV. B. ASCLEPIAS MACROTIS.—Page 164.

A PLANT OF THE NATURAL SIZE.

Fig. 1. A flower; enlarged. Fig. 2. One of the hoods; magnified. Fig. 3. The same laid open. Fig. 4. An anther, seen from the inside; considerably magnified. Fig. 5. A pair of pollen masses; more highly magnified.

PLATE XLVI. ACLEISANTHES LONGIFLORA.—Page 170.

A PART OF THE PLANT OF THE NATURAL SIZE.

Fig. 1. Upper part of the perianth laid open. Fig. 2. Lower portion of the same. Fig. 3. A stamen; magnified. Fig. 4. The ovary laid open; magnified. Fig. 5. The fruit; enlarged.

*Incorrectly named Asclepias in the plate.

Fig. 6. Transverse section of the same; more enlarged. Fig. 7. The embryo detached. Fig. 8. Side view of the same.

PLATE XLVII. A. SELINOCARPUS ANGUSTIFOLIUS.—Page 170.

AN ENTIRE PLANT OF THE NATURAL SIZE.

Fig. 1. The perianth laid open; enlarged. Fig. 2. The fruit; also enlarged. Fig. 3. Longitudinal section of the same. Fig. 4. Transverse section of the same; more enlarged. Fig. 5. The embryo detached; equally magnified. Fig. 6. Side view of the same.

PLATE XLVII. B. PENTACROPHYS WRIGHTII.—Page 170.

A PORTION OF THE PLANT OF THE NATURAL SIZE.

Fig. 1. A transversely divided fruit from a precociously fructified unexpanded flower; enlarged. Fig. 2. A fruit from an expanded flower; equally enlarged. Fig. 3. The same; of the natural size.

PLATE XLVIII. MIRABILIS CALIFORNICA.—Page. 169.

UPPER PART OF THE PLANT OF THE NATURAL SIZE.

Fig. 1. A flower, with its involucre; enlarged. Fig. 2. The same, laid open. Fig. 3. A fruit, about four times the natural size.

PLATE XLIX. SIMMONDSIA CALIFORNICA.—Page 202.

A. A FLOWERING BRANCH OF THE MALE PLANT. B. A BRANCH OF THE FEMALE PLANT.

Fig. 1. A male flower; enlarged. Fig. 3. The same, with the stamens removed. Fig. 2. An anther; more enlarged. Fig. 4. The ovary; magnified and longitudinally divided. Fig. 5. An ovule, more highly magnified. Fig. 6. Longitudinal section of the same. Fig. 7. A seed, somewhat enlarged. Fig. 8. Longitudinal section of the same. Fig. 9. Transverse section of the same.

PLATE L. CELTIS PALLIDA.[1]—Page 203.

A. A FLOWERING BRANCH OF THE NATURAL SIZE. B. A FRUCTIFEROUS BRANCH.

Fig. 1. Plan of the flower. Fig. 2. An expanded sterile flower; magnified. Fig. 3. A stamen from the same. Fig. 4. A cluster of flowers, the terminal perfect; magnified. Fig. 5. Pistil, with the ovary longitudinally divided. Fig. 6. A droop, with the upper half of the sarcocorp cut away; enlarged. Fig. 7. Transverse section of a seed. Fig. 8. The embryo detached.

PLATE LI. QUERCUS ACUTIDENS.—Page 207.

A BRANCH WITH FRUIT; OF THE NATURAL SIZE.

PLATE LII. PILOSTYLES THURBERI.—Page —.

THE PLANTS, CONSISTING OF SINGLE FLOWERS, PARASITIC ON DALEA SCHOTTII.

Fig. 1. Magnified longitudinal section of a branch of the Dalea, showing the mode of attachment of the parasite. Fig. 2. A fertile flower; magnified. Fig. 3. Transverse section of the

[1] Named *C. cinerea* on the plate.

same. Fig. 4. Longitudinal section of the same. Fig. 5. An ovule detached and highly magnified.

PLATE LIII. PINUS LLAVEANA.—Page 208.

A BRANCH OF THE NATURAL SIZE.

Fig. 1. A mature cone. Fig. 2. The same, with the scales expanded. Fig. 3. A seed: all the figures of the natural size.

PLATE LIV. PINUS MURICATA.[2]—Page 209.

A. A BRANCH WITH STAMINATE CATKINS OF THE NATURAL SIZE.
B. A CONE OF THE NATURAL SIZE.

PLATE LV. PINUS INSIGNIS.—Page. 209.

A. A BRANCH OF THE NATURAL SIZE.
B. A CONE OF THE NATURAL SIZE.

PLATE LVI. PINUS DEFLEXA.—Page 209.

LEAVES OF THE NATURAL SIZE.

Fig. 1. A cone. Fig. 2. A seed; both of the natural size.

PLATE LVII. PINUS SABINIANA.—210.

A BRANCH WITH LEAVES, AND A CONE OF THE NATURAL SIZE.

PLATES LVIII AND LIX. PINUS TORREYANA.—Page. 210.

A BRANCH WITH LEAVES, AND A CONE OF THE NATURAL SIZE.

PLATE LX. CHLOROGALUM POMERIDIANUM.—Page —.

UPPER AND LOWER PORTION OF THE PLANT, OF THE NATURAL SIZE.

Fig. 1. A sepal and stamen; enlarged. Fig. 2. Transverse section of the ovary; magnified. Fig. 3. An ovule; highly magnified.

PLATE LXI. FRITILLARIA LANCEOLATE.—Page —.

A AND B. BROAD AND NARROW LEAVED FORMS OF THE PLANT, OF THE NATURAL SIZE.

Fig. 1. An exterior sepal; enlarged. Fig. 2. An interior sepal; equally enlarged. Fig. 3. A stamen; magnified.

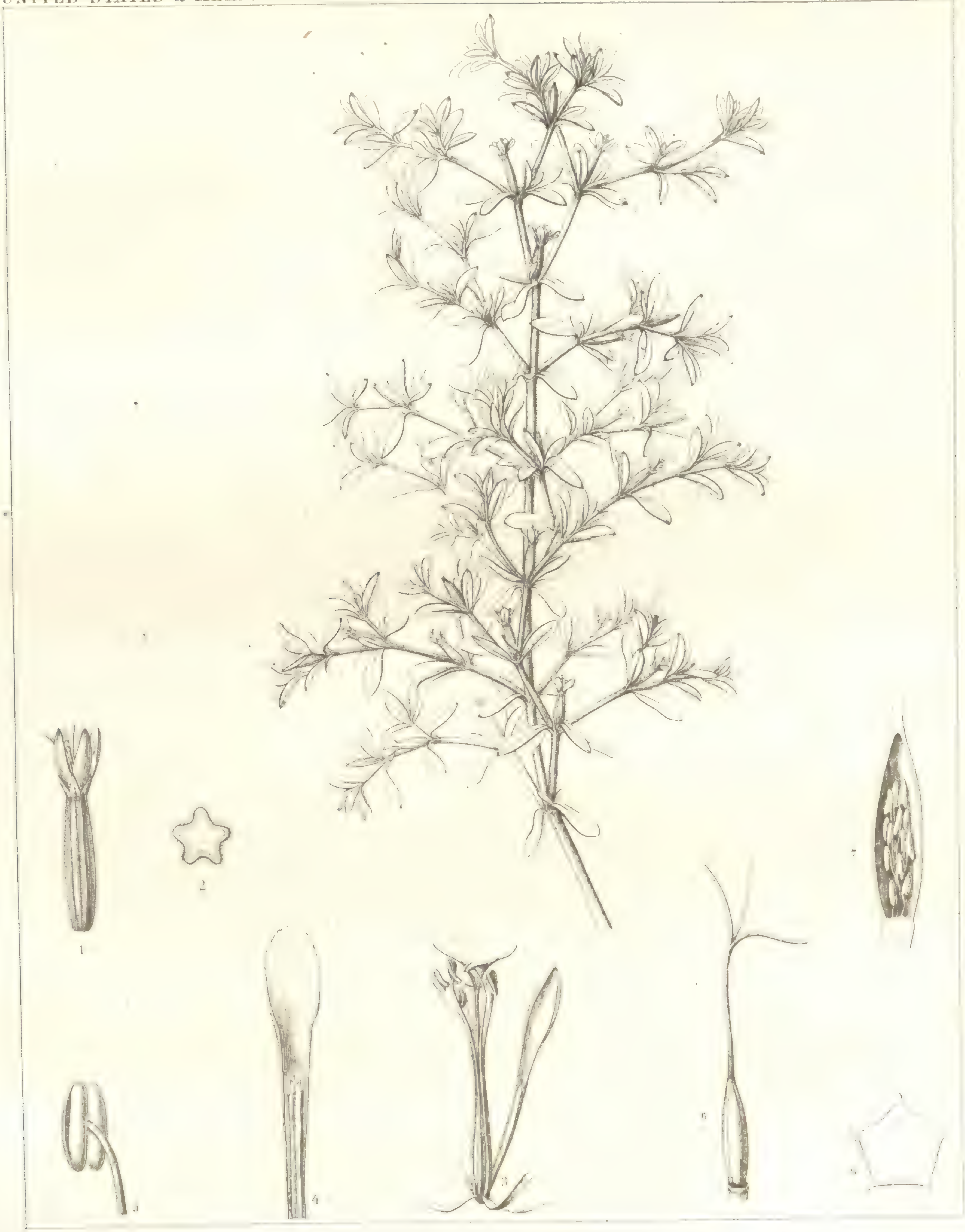
[2] Named *P. edgariana* on the plate.

CLEMATIS LASIANTHA.

DELPHINIUM CARDINALE

DENDROMECON RIGIDUM.

[illegible] ARBOREA.

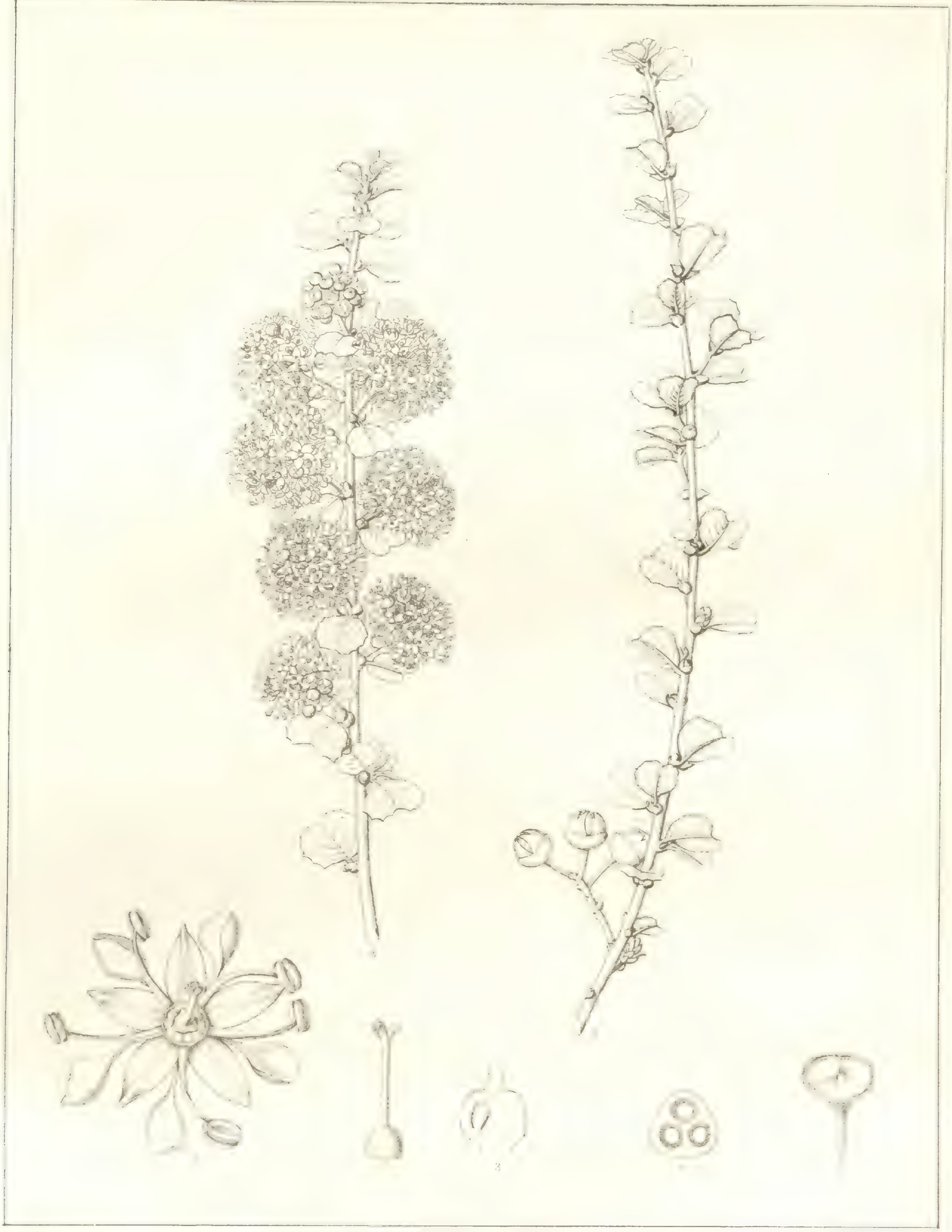


FRANKENIA GRANDIFOLIA

THURBERIA THESPESIODES

LITHRÆA LAURINA

HOLACANTHA EMORYI



CEANOTHUS RIGIDUS

CEANOTHUS DENTATUS

CEANOTHUS CRASSIFOLIUS

POLYGALA NUTKANA

KRAMERIA CANESCENS

PICKERINGIA MONTANA

HOSACKIA GRACILIS.

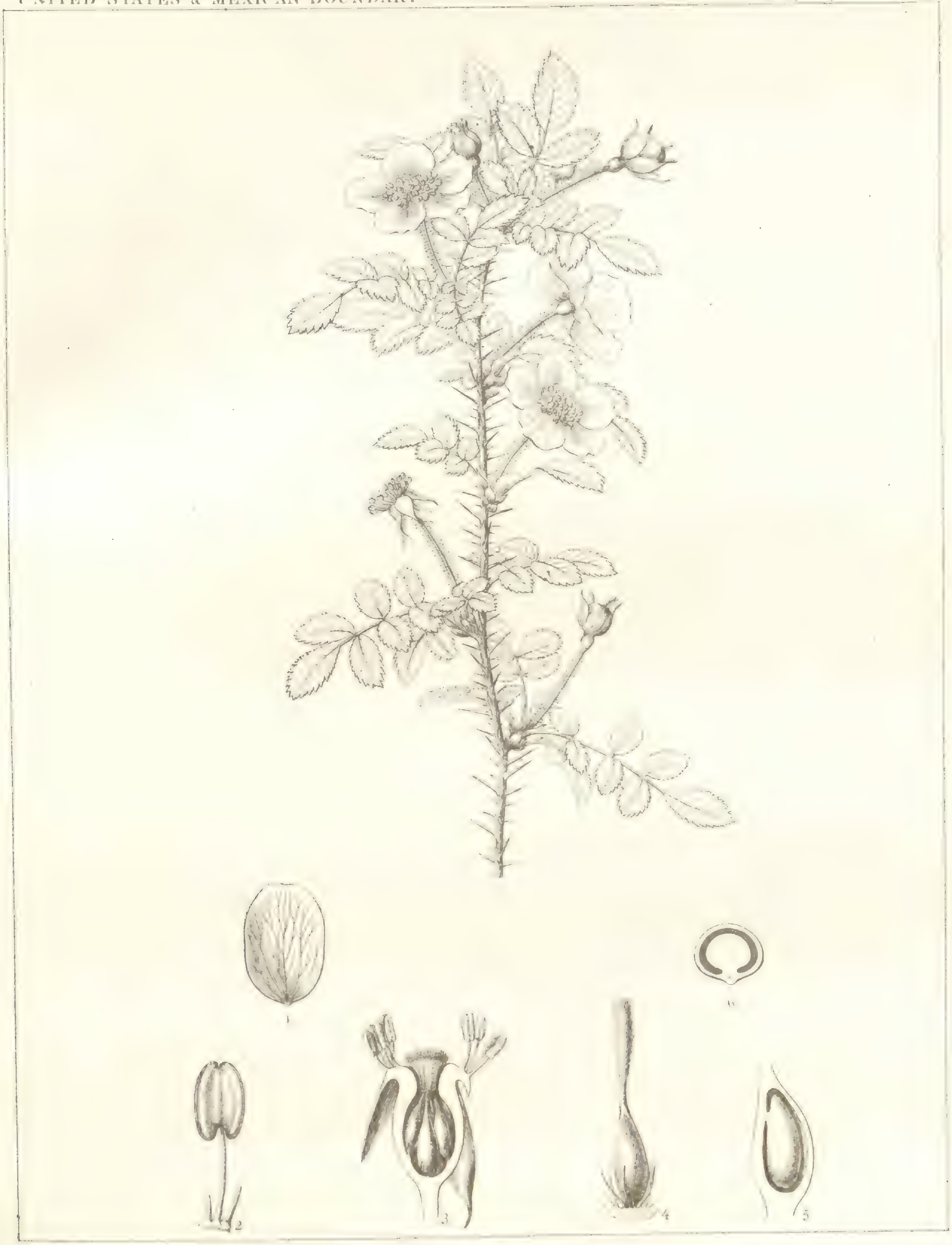
ASTRAGALUS (PHACA) LEUCOPSIS

ASTRAGALUS CROTALARIOIDES

CHÆTOCALYX S[illegible] [illegible]

ACÆNA PINNATIFIDA

ADENOSTOMA SPARSIFOLIA.



ROSA GYMNOCARPA

PETALONYX THURBERI

RIBES MENZIESII

ECHEVERIA LANCEOLATA

SAXIFRAGA PARRYI

DEWEYA ARGUTA

EURYPTERA LUCIDA.

APIASTRUM ANGUSTIFOLIUM

LONICERA SUBSPICATA

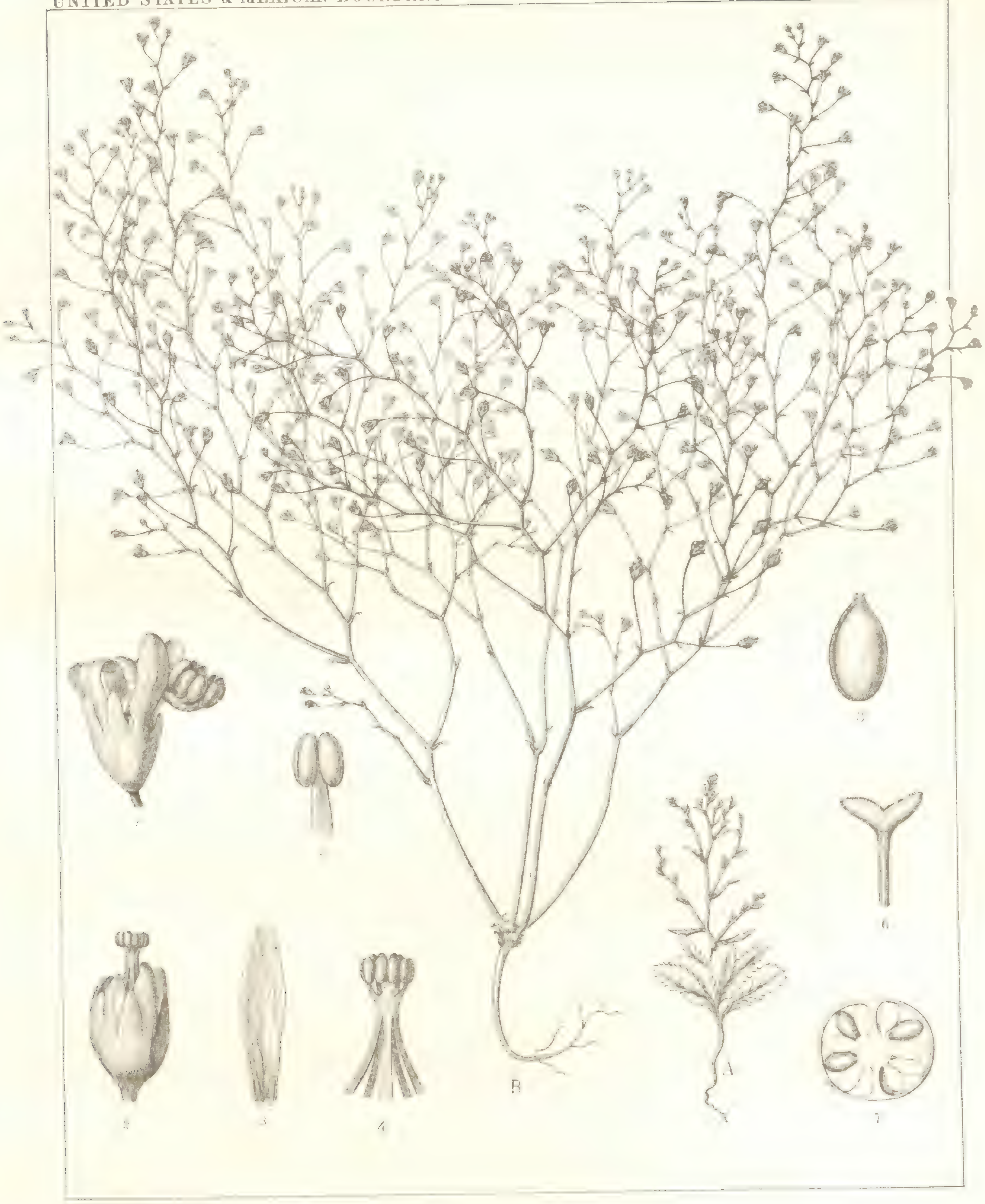
7
6
5
4
1

TUCKERMANIA MARITIMA

ACARPHÆA ARTEMISIÆFOLIA.

ACTINOLEPIS MULTICAULIS

RAFINÉSQUIA CALIFORNICA



NEMACLADUS RAMOSISSIMUS

EMORYA SUAVEOLENS

SPHACELE CALYCINA.

AUDIBERTIA GRANDIFLORA

SALIZARIA MEXICANA.

TRICHOSTEMA LANATUM

TETRACLEA COULTERI.

ERYTHRÆA CHIRONIOIDES β

ECHITES MACROSIPHON.

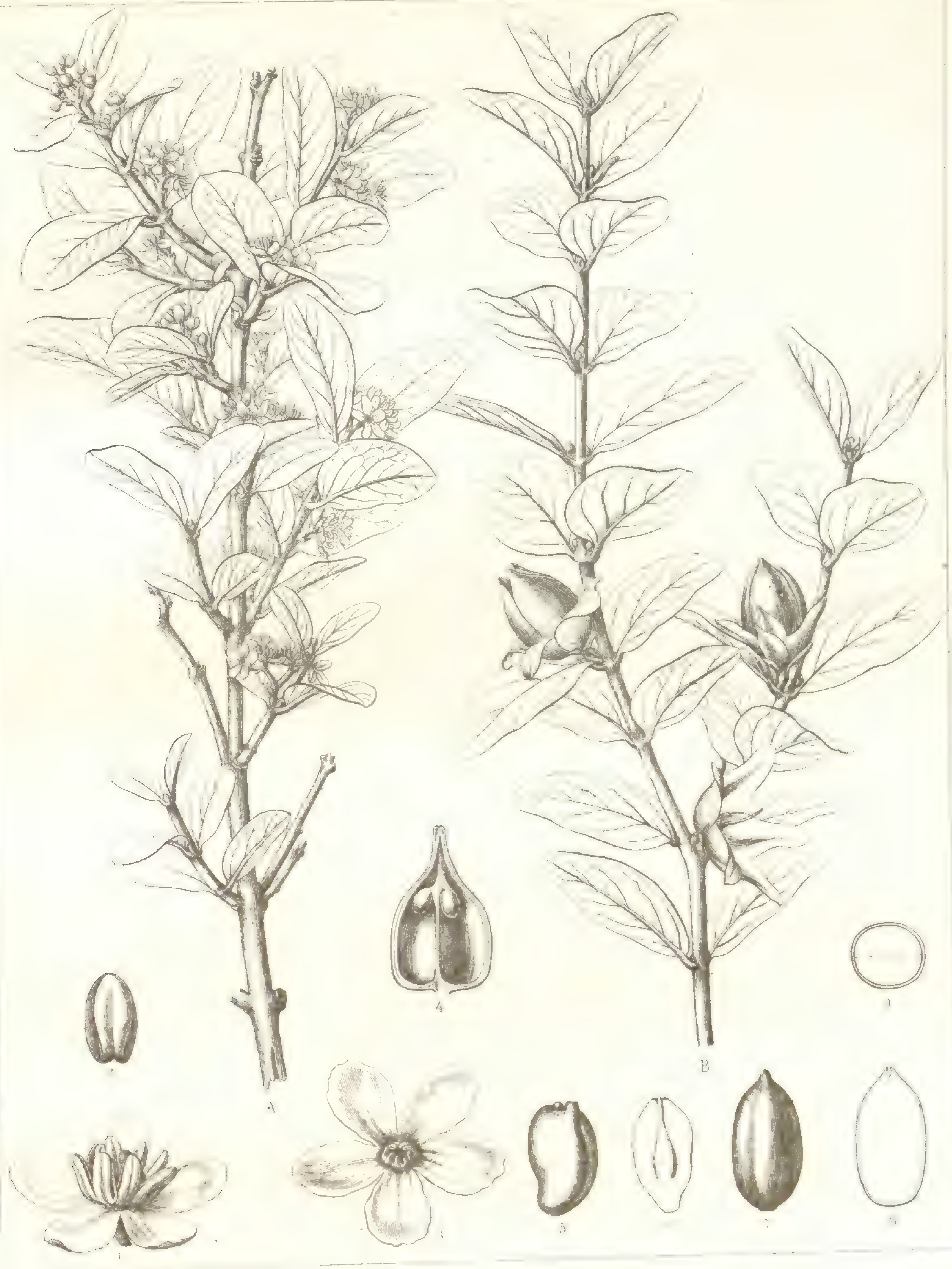
ASCLEPIAS TOMENTOSA

A. ASCLEPIAS NUMMULARIA. B. ASCLEPIAS MACROTIS

ACLEISANTHES LONGIFLORA.

SELINOCARPUS ANGUSTIFOLIUS. PENTACROPHYS WRIGHTII.

MIRABILIS CALIFORNICA



SIMMONDSIA CALIFORNICA

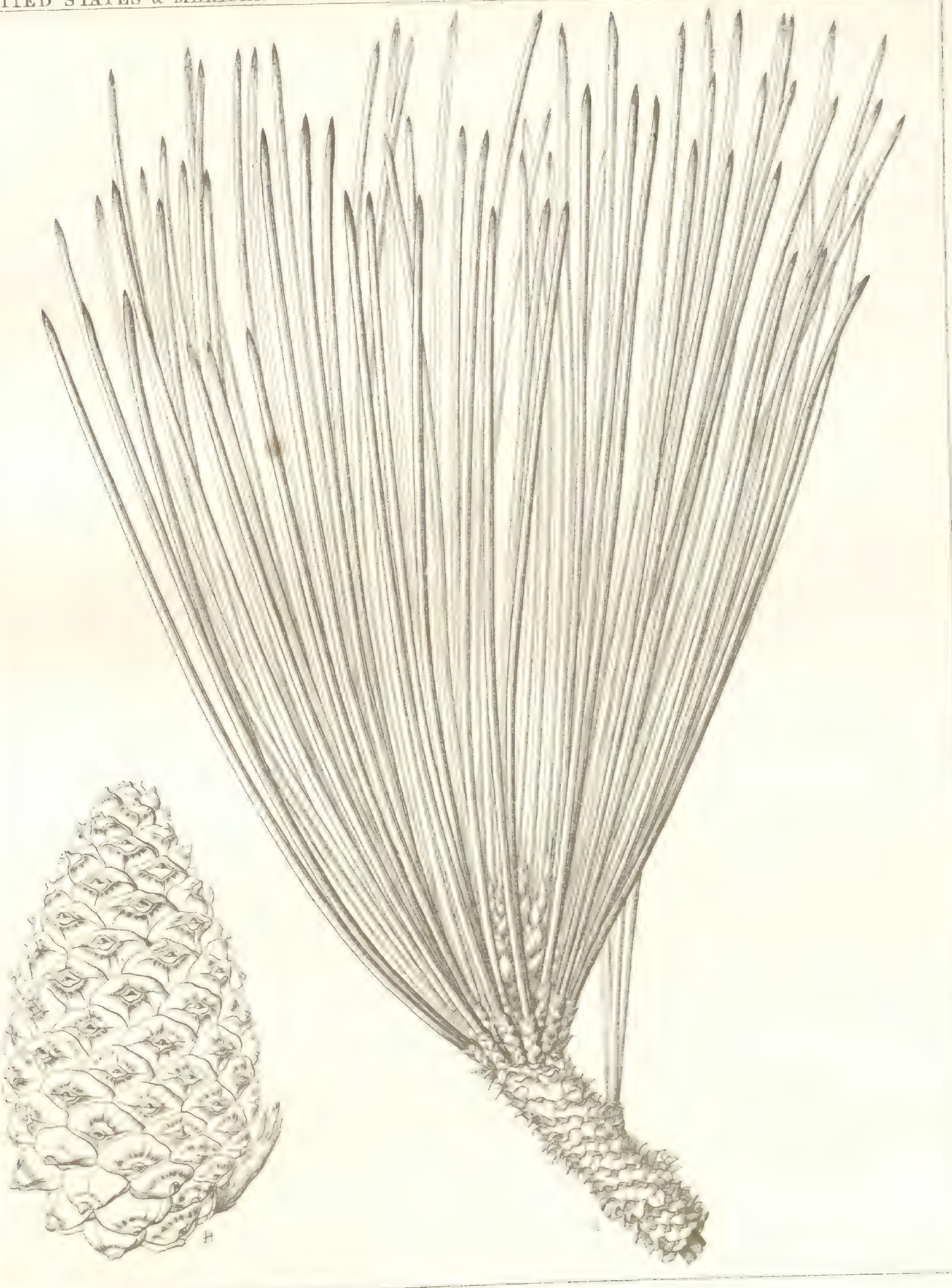
CELTIS CINEREA.

QUERCUS ACUTIDENS.

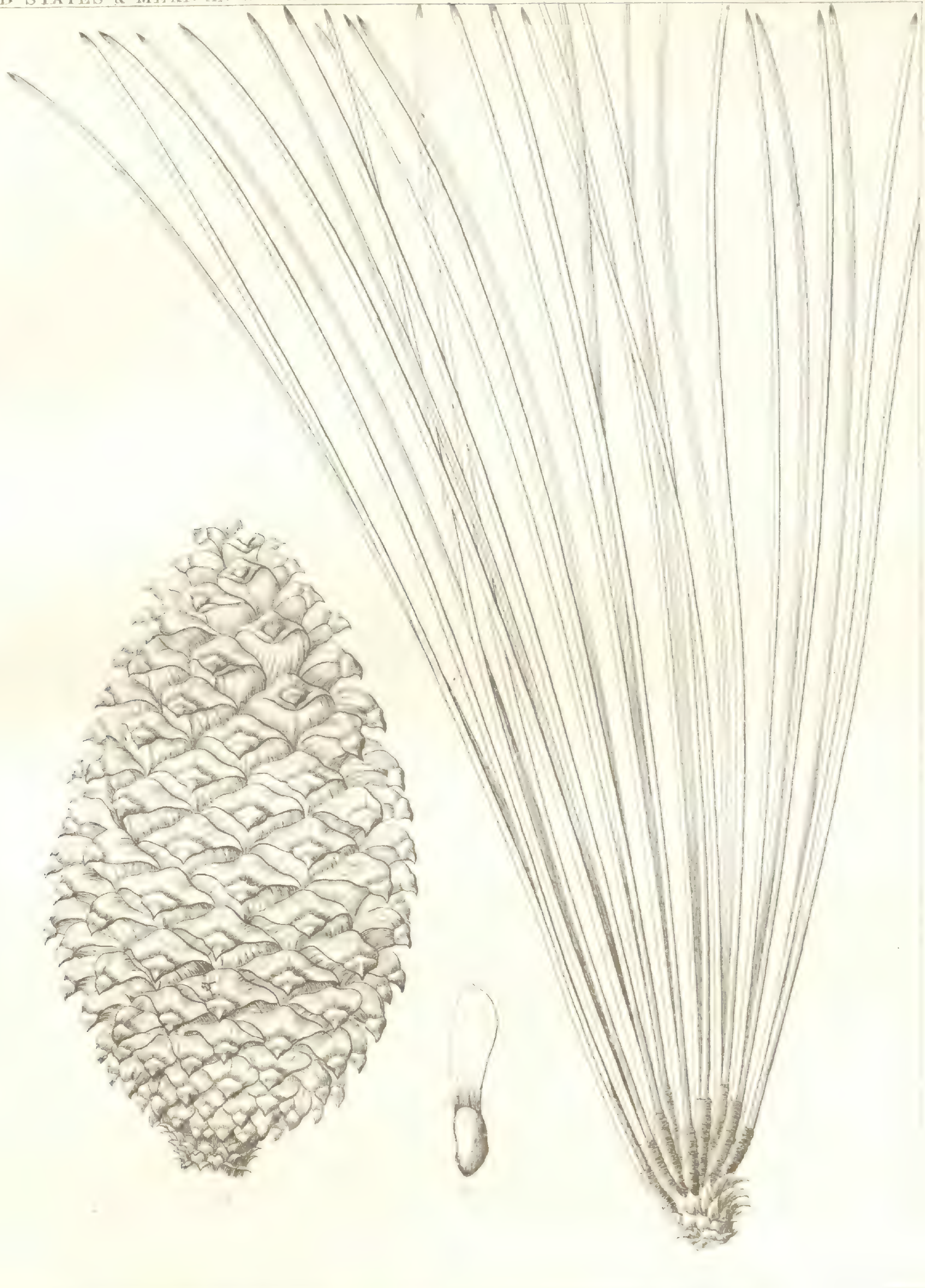
PILOSTYLES THURBERI.

PINUS LLAVEANA

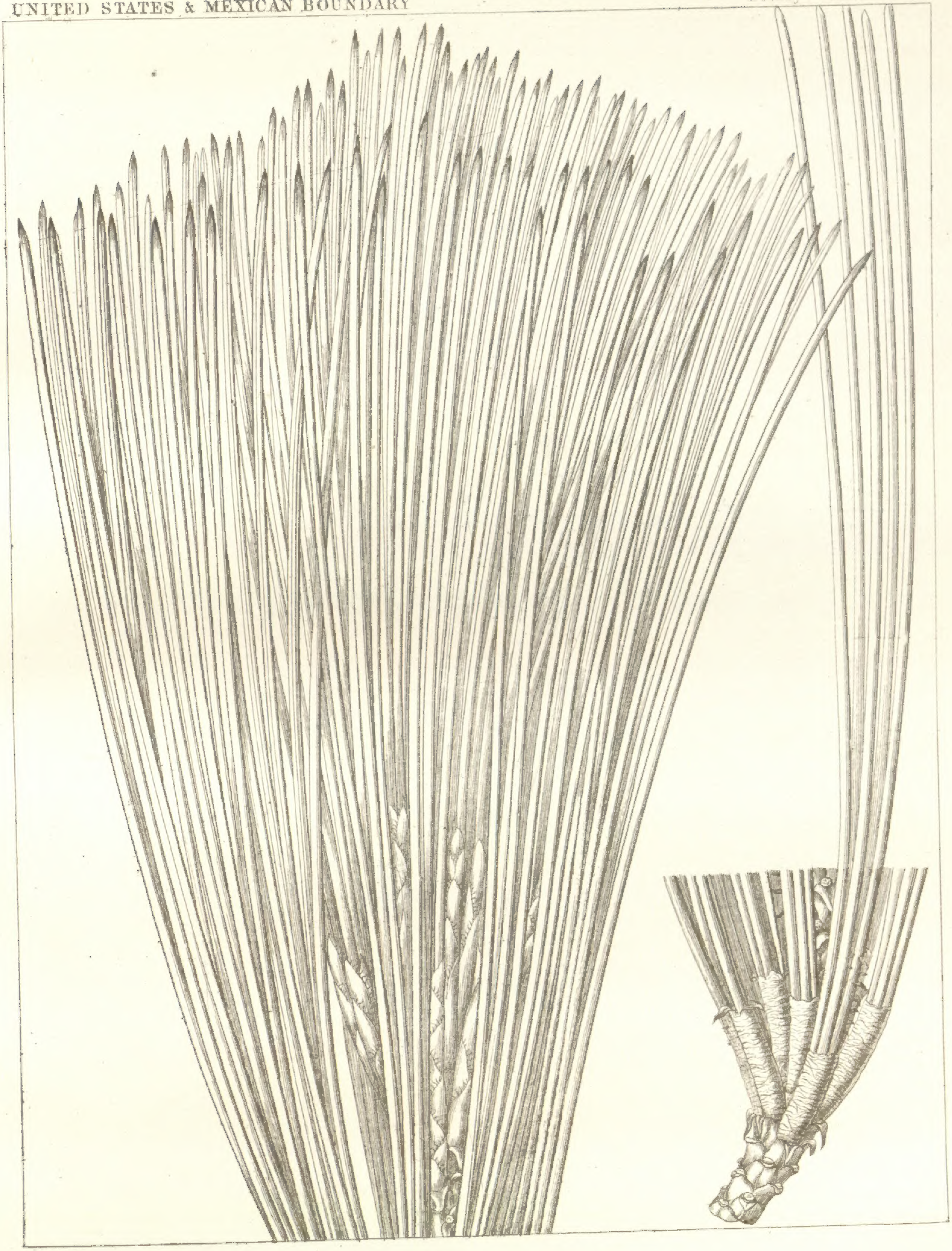
PINUS EDGARIANA.



PINUS INSIGNIS.



PINUS . SABINIANA.



PINUS TORREYANA

PINUS TORREYANA.

CHLOROGALUM POMERIDIANUM.

FRITILLARIA LANCEOLATA.